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MINIS are BIG!

5 MICRO CARS TESTED

HPI NITRO RS4 RTR 3

OFNA Pirate 10 Monster
Small truck, big engine, buckle up!

Corally SP12M
1/12-scale Euro performance

Kyosho Alpha 2 RTRs
Ready-to-run street and rally action

Panasonic 3000 ULTRA METAL

ULTRA POWER

TRINITY'S NEW SUPER CELL *page 31*

GET MORE FROM YOUR MAXX!

We test Pro-Line's Maxx suspension kit

www.rccaraction.com

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NUMBER 6
JUNE 2002

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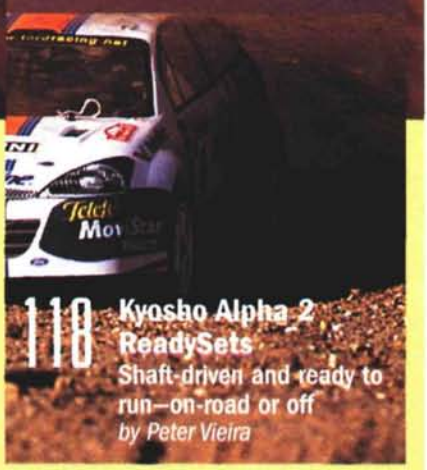

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ON THE COVER: The HPI Nitro RS4 3 RTR goes for the green (it's running on a tennis court, in case you are wondering); Panasonic's Ultra Metal 3000 is the newest big battery on the electric scene. (Walter Sidas Nikon'd the stuff.)

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Micro Madness!

Will RC's Next Big Thing be a very small thing? Kyosho's 1/24-scale RTR Mini-Zs have been selling well since they first appeared, and the new F1 models are off to an equally hot start. Most recently, HPI's Micro RS4 has brought 4WD and a traditional kit-building experience to the sub-1/12-scale scene, and it plans to launch an RTR version soon—probably by the time you read this. And there are other players, too: Horizon Hobby handles ABC's Pocket Racer; BRP's original Oval Outlaw has evolved into the Super Car 18; and a host of other mini- and micro-cars are on the horizon.

Of course, the tiny-car concept isn't all that new; Tamiya's TamTech line brought full-fendered racers and F1 cars to RC in 1/24 scale years ago, and Kyosho offered the only off-road minicar I've ever seen—a 1/24-scale version of its Ultima buggy, complete with independent suspension! So why are the little cars so big (so to speak) now? That's easy: they are simply better machines. Let's consider the biggest players, Kyosho and HPI. Kyosho's Mini-Zs have an unprecedented level of detail in their hard plastic bodies with factory-painted finishes that would require more time and skill to duplicate than most of us possess. For the RC fan who appreciates scale models, the Mini-Zs are the ultimate. For the more hobby-minded you-build-it types, HPI's Micro RS4 delivers a pleasant build and the personal-touch options that only clear bodies can provide—as well as big-car features (independent suspension, 4WD) and "regular-size" RC gear compatibility. And both brands are fully supported by the aftermarket, which greatly extends the opportunities for personalization and increased performance—two of "big" RCs most important draws.

Mini- and micro-cars are here to stay; they look good, perform well and open the door to year-round RC action without your having to trek to an indoor track. Let the living room Grand Prix, hallway drags and dining room Le Mans commence!

IN THIS ISSUE

Well what do you know? ... a five-car mini-machine comparo article! The **Micro-Car Meltdown** features head-to-head action with Kyosho's Mini-Zs (sedan and F1), HPI's Micro RS4, BRP's Super Car 18 and ABC's Pocket Racer. We even radar-tested them; the fastest topped 20mph! You'll just have to check out the article to see which car it was.

If you want to make your Traxxas T-Maxx go faster, we have two articles for you. The **Pro-Line Maxx Suspension kit** is tested (the short version: it works), and there are complete step-by-step installation details; and anyone with a Traxxas RTR will appreciate the porting mods covered in How To: Port and Polish your Traxxas TRX .15. (Don't have a Traxxas? You can use the tips for other engines, too.)

Then again, you might not feel like wrenching on anything. We've got you covered there as well with reviews of three new ready-to-runs for instant RC action in the dirt or on the blacktop. This month, the HPI Nitro RS4 RTR 3, OFNA Pirate 10 Monster RTR and Kyosho Alpha 2 ReadySet are all given our rigorous Track Test treatment.

Peter Vieira
Executive Editor

MONSTER SPECIAL ISSUE!

Look for *Radio Control Monster Trucks* on your local newstand soon! It's packed with all types of big-tire machines, stadium action, nitro-burning rigs, and all the info you need to pick your next truck—plus in-depth how-tos, expert advice, and killer photography of all the insane action. Not to be missed!

DREAM JOB ALERT

We're looking for an enthusiastic, organized individual to join *Radio Control Car Action*. This in-house (Ridgefield, CT) position requires knowledge of the RC car hobby, writing and editing experience and the ability to coordinate schedules and meet deadlines.

Send cover letter and résumé to:
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RADIO CONTROL car action

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BUDGET BLASTING
I was saving to buy another RC car when I read the "Budget Blasters" article in your April issue. Instead of getting just one car, I bought two—a Bolink Econo Rail and the Bolink Pro Stock you featured. The total cost was under $150 with shipping! I finished the cars with gear that I had lying around, and my too-tired-for-racing stock motors still have all the power needed to make the lightweight drag cars fly—especially on 7 cells. I spent less for two cars than I planned to spend on one, and I'm having a blast! [email]
Frank Millway

RC = RESCUED CAT
A couple of weeks ago, my cat, Merlin, didn't come home one evening; it's unusual for him to ever miss a meal, much less not come in at night. The next day, we found out why. When we found him, it looked as if he had been rolled by a car. He was obviously in pain, but he wouldn't come to us from the storm drain he had hidden in, and we couldn't get to him. Then I had an idea. I slowly drove my HPI RS4 down the drainpipe toward Merlin while my wife waited for him at the other end with a blanket. When he saw the car coming toward him, he decided it was time to go, and out he came. Merlin is fine now, and I thought other readers might enjoy reading about how an RC car was used as a pet-rescue tool.
Joseph Bejnarowicz
Savannah, GA

I'm glad Merlin is OK, but he must be pretty well freaked out: first he's hit by a car, then a "baby" car comes down the storm drain after him!
—*Pete*

WE KNOW
I was checking out Greg's pimped-out E-Maxx ("Mega-Buck Trucks," October 2001), and I thought it was awesome. In the article, Greg says, "Let me tell you, there were some ridiculously hard landings that drew wincing gasps of disbelief from the guys at the track, but there wasn't one broken part to be found." Then I noticed that the picture smack-dab in the center of page 107 shows a "limping" E-Maxx! Looks like some parts breakage to me, or there's some wicked camber on that beast! [email]
Matt Schubkegel

Matt, you're only about the one millionth guy to let us know that Greg's Maxx looks as broken as the Brady's prized vase after the boys played ball in the house. Sorry to disappoint you, but all that happened was the tire came unglued!
—*Pete*

MANTA MATTERS
Can you give me some advice on how to choose between a Tamiya XB Manta Ray and a Traxxas Bandit? I would like to have the Manta's 4WD capability, but I also want to race in the near future, and if I show up to compete with a Manta, I would probably get a couple of laughs. I also like the Traxxas Bandit, but it isn't 4WD. Do you have any suggestions for an inexpensive, 4WD buggy that I might be able to race? [email]
Mircovich

I raced a Baja Champ in 4-wheel once; who cares? The real question is this: does your track even race 4WD buggies? If they only have a 2WD class, and racing is important to you, get the Bandit. But it sounds to me as if playing is more your thing and that you really want a 4WD buggy. So get the Manta (or the Neo Top Force XB—same chassis, different body). The classic Tamiya 4-wheeler is still a lot of fun, and Tamiya's XB ready-to-runs are really well-put-together packages. The other budget-buggy option is Kyosho's Alpha-based machine, which has just been updated with shaft drive. Have fun.
—*Pete*

OVAL NATS BROUGHT TO YOU BY ...
Wow! Please tell your art department that the Paved Oval Nats article in the April 2002 issue looked awesome. But there was a glitch: not all of the sponsors were listed. Can you give a plug to all the companies that helped make the Nats such a great race? In addition to *RC Car Action*, the primary sponsors were BSR Racing Tires and Team Hyperdrive Racing. Additional sponsors were RC4Less, Team Associated, Team Trinity, Team 1 RC Racing Products, Kimbrough Products, Wolfe Motorsports, Zuback Speed Juice, Bullit Motorsports, Futaba, MSA Distributing, Mike Boylan's Snowbird Nationals and IRS Racing Products. [email]
Kenny Bergschultz

I'll freely admit that the *RC Car Action* art department is the best, but it all starts with good writing and great photography, so give yourself a pat on the back, my friend. (Readers, if you're confused, Kenny covered the Paved Oval Nats for us in the April issue.) As for those sponsors, I think you just took care of that.
—*Pete*

YOU SAID IT

"Too bad RC quads went away ..."

Remember those cool little Kyosho ATVs (quads)? What happened to them? Those things looked as if they would be a blast to drive ... but I don't see them for sale anymore. They caught my eye because I ride them myself, and quads are about the only things I enjoy more than RC. Just think: there could have been electric and nitro quad classes, and it would have been just like full-size quad motocross! It's too bad they went away, like the RC on-road super bikes. [email]
Rusty

Yeah, too bad. It's tough to be an RC product manager; all they hear is, "You guys should make this, you guys should make that, if you made one I'd buy it, blah, blah, blah ...."

Kyosho is probably the most adventurous of all the RC manufacturers. In addition to the quads, Kyosho has brought us go-karts, snow cats and a line of motorcycles that evolved into the "Hanging-On Rider" model that featured an articulated dude that popped out his knee to corner! All were cool; none caught on. We need to buy this stuff when it comes out so that the manufacturers will keep making it! Readers, if you think the Nitro Elements ArtAttack snowmobile is cool, *buy one*. If Thunder Tiger's Fm1e motorcycle (which is nearly identical to the Nuova Faor SF501 we tested in the May 2002 issue) can fix your 2-wheeler jones, *buy one*. I don't want to be answering any "Where can I get that thing I saw two years ago ..." letters in 2004!
—*Pete*

WRITE TO US! We welcome your photos, drawings, comments and suggestions. Letters should be addressed to "Letters," Air Age Inc., *Radio Control Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. Letters may be edited for clarity and brevity, and each must include a full name and address or telephone number so that the identity of the sender can be verified. We regret that, owing to the tremendous numbers of letters we receive, we can't respond to every one.

EMAIL
- Peter Vieira: peterv@airage.com
- George Gonzalez: georgeg@airage.com
- Bob Hastings: bobh@airage.com
- Kevin Hetmanski: kevinh@airage.com
- Steve Pond: stevep@airage.com
- Greg Vogel: gregv@airage.com

BY PETER VIEIRA

Trinity's New Super Cells

Panasonic Ultra Metal 3000 NiMH

Nickel-metal-hydride technology continues to evolve, and Panasonic's new cell looks as though it's the big-volt powerhouse to beat. Trinity is the worldwide exclusive importer of the latest generation of Panasonic NiMH cells and promises significant performance gains to users. According to Trinity, the new Ultra Metals offer longer run times, higher voltage, less internal resistance (which equals more punch), and greater durability than previous cells. Trinity plans to offer a full range of Team and Race-specification matched packs as well as stick packs for budget-conscious racers and performance-minded enthusiasts. **Trinity Products (732) 635-1600; teamtrinity.com.**

MANUFACTURER'S SPECS

Average run time @ 30A discharge: 360 to 380 sec.

Average voltage: 1.133 to 1.140 (Team Spec)

Internal resistance: 17 to 18 calculated; 3 to 3.2 actual

Milliwatt hours: 3,600+

Matcher spec: Turbo Matcher 4, 5A charge; 30A discharge; 0.90V cutoff; 5000 run-out.

Pre-Stuck STICKY RUBBER

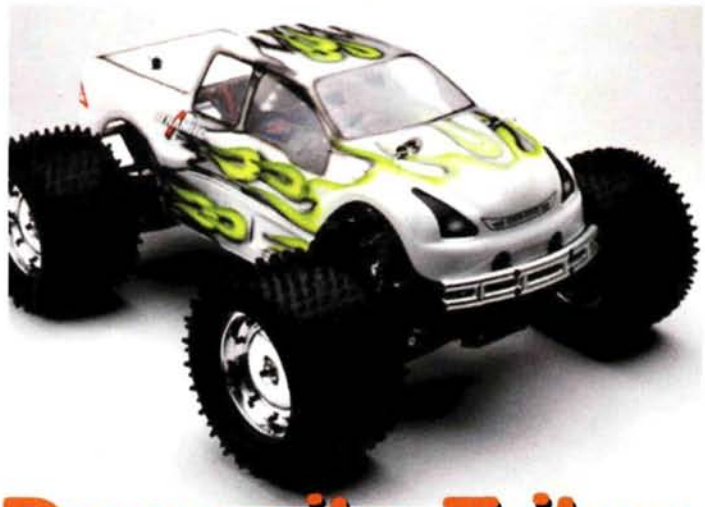
Factory-glued Maxx tires

Pro-Line's Maxx Masher and Maxx Road Rage tires are big hits for the Traxxas big trucks, and you can now get them factory-glued to Pro-Line's wide-offset Velocity 6 wheels. The Weld-licensed hoops look great, and there's no chance you'll goof them up with a big CA thumbprint because some poor guy now spends eight hours a day gluing on tires for lazy bums like you. And me.

Pro-Line (909) 849-9781; prolineracing.com.

TOTAL Domination

HERE'S YOUR FIRST LOOK AT OFNA'S newest monster—the Dominator. It's based on the Monster Pirate, but this time around, pure performance is the theme. That's why the Dominator wears low-profile rubber on oversize wheels. A slipper clutch is standard, new long-travel shocks are fitted, and the front brace is now tied directly to the front shock tower. Beefy. The new truck looks good, too: the Monster Pirate's shoebox body has been replaced by the factory-finished beauty you see here. And you won't need to wait long to run the Big D, since OFNA is selling it RTR with an Airtronics radio system and a Hyper .21 engine. Look for a test next month! **OFNA Racing (949) 586-2910; ofna.com.**



Dynamite Triton

for Traxxas E-Maxx

IF PRODUCTION-TRUCK LOOKS aren't what you want for your E-Maxx, go sci-fi! Dynamite's Triton flatbed is now available for the E-Maxx, and the serious-looking shell will separate your Maxx from the other guys'. Decals for the grill, headlight and taillight make it easy to mack out.

Dynamite; distributed by Horizon Hobby (800) 338-4639; horizonhobby.com.

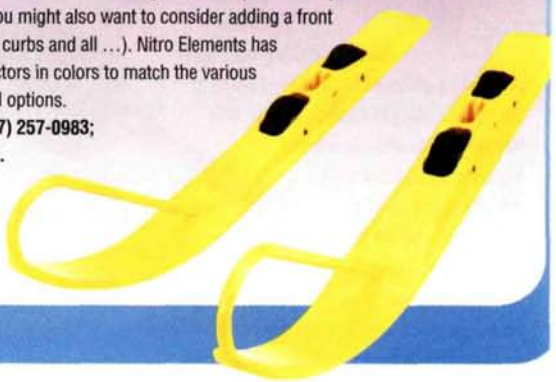
MO' GO in the SNOW

ArtAttack upgrade kit

If you have a first-run Nitro Elements ArtAttack sled, be sure to act on this offer! Nitro Elements will hook you up with a reinforced belly pan, waterproof receiver and switch box, battery-mounting brackets, redesigned header clip and header spring and additional parts to bring your sled up to current specs. You'll also get a revised manual to help you put it all together. For details, contact Nitro Elements, but remember that the offer is for first-production-run sleds only; current kits already include all the new stuff.

Also new: road skis! No snow on the ground? No problem! If you take to the street, you might also want to consider adding a front bumper (you know, curbs and all ...). Nitro Elements has the front-end protectors in colors to match the various ski and engine hood options.

Nitro Elements (877) 257-0983; nitroelements.com.



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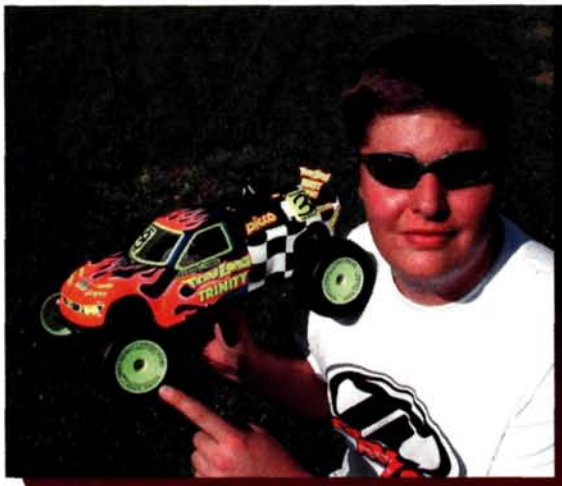
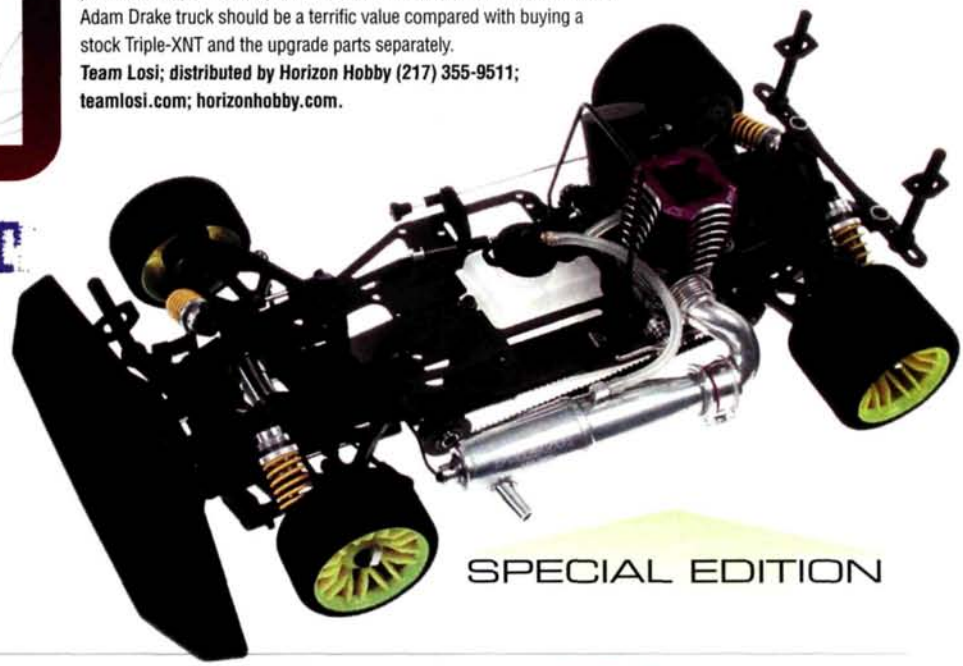


<< Adam Drake Losi XNT

Brian Kinwald has a signature Triple-X, Matt Francis has a signature Triple-XT .... Now Losi is set to release its first signature nitro machine—a graphite-fortified Triple-XNT with an Adam Drake theme. So what's it gonna be this time?—purple-anodized stuff? Heck no; this truck is full race and has a serious blackout look, thanks to the hard-anodized aluminum chassis, pin brace, brake clips, motor mounts and transmission brace. You also get the usual Team Losi signature stuff, including titanium-nitride shock shafts, threaded shock bodies, ball-bearing steering, titanium turnbuckles and a full graphite package. A swoopy Fury NT body and solid-face logo wheels finish off the Adam Drake NT, and you even get Adam's personal setup. No price yet, but like Losi's other signature machines, its Adam Drake truck should be a terrific value compared with buying a stock Triple-XNT and the upgrade parts separately.

Team Losi; distributed by Horizon Hobby (217) 355-9511; teamlosi.com; horizonhobby.com.



SPECIAL EDITION

SUDDEN IMPACT

Serpent Impact M2 WC-02

Before there were 200mm nitro tourers, Serpent had plenty of wheel time with the 1/10-scale, 235mm on-road Impact series, which served as the launching pad for Serpent's Impulse program. The Impact is still a Serpent staple, and it is now offered in a WC-02 (World Cup 2002) model in 2WD and 4WD versions. The kit adds a graphite front shock tower, rear body mount and chassis stiffener, PTFE-coated (that's "generic" for Teflon) aluminum shock bodies to the already loaded Impact platform. You also get a camber gauge and "Tyre Savers" to protect the foam tires' sidewalls.

Serpent USA (305) 639-9665; serpent.com.

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HPI Nitro RS4

PURPLE POWER

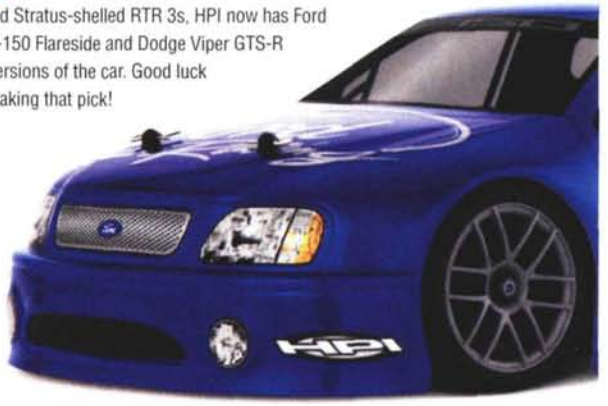
The HPI guys are always quick out of the gate with hop-ups for the latest RS4; this time, it's the new RTR 3 (tested for this issue, by the way). Go ahead; blow off the cable bill and hot-rod your ride with this stuff:

>> Super chassis. Deep anodizing makes this chassis more purple than Barney, and it's a 3mm slab of 7075 aluminum; that's a formula for super stiffness. Angled sides reduce chassis scrub when cornering; all the edges are chamfered for a finished look (and no sharp edges); and all the screw holes are countersunk. Nice.

>> 2-speed transmission. Threaded clutch-bell pinions and changeable spur gears let you tweak the ratios to suit your speed needs, and the shift point is adjustable (of course). A must-have if you want to be king of the parking lot.

>> New looks. If you aren't down with the Camaro and Stratus-shelled RTR 3s, HPI now has Ford F-150 Flareside and Dodge Viper GTS-R versions of the car. Good luck making that pick!

3 FACTORY OPTIONS



And your wife says there's no passion left in you.

Radio Control Cars

O Scale Engines

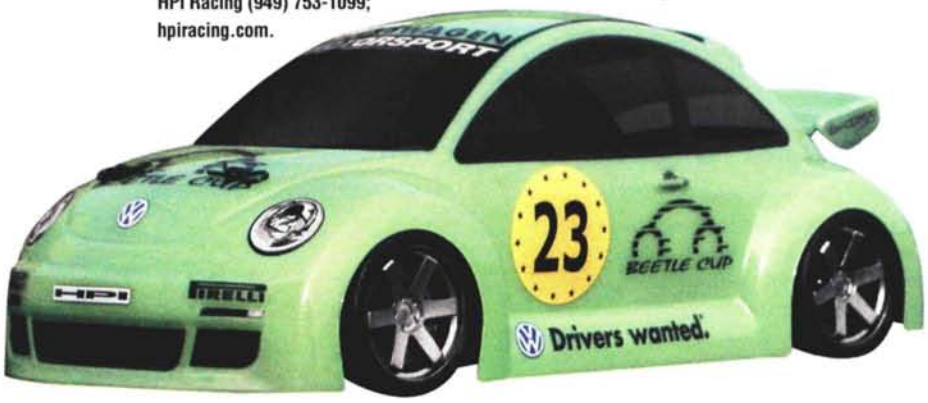
HPI Micro RS4 RTR

NOT IN THE MOOD to put together an electronics package for a Micro RS4 (or put together the car itself, for that matter)? Let HPI do the wrenching. The Micro RS4 RTR includes a painted and trimmed body, molded rear wing, micro reversing ESC and Airtronics-built HPI TX-2 radio system. The RTR will be offered in Skyline and BMW M3 versions, and more body styles are to come.

In other RS4 Micro news, HPI announced the addition of a VW Beetle Cup version to the red-hot 1/18-scale series. Looks good.

HPI Racing (949) 753-1099; hpiracing.com.

RTRTR=
really tiny
Ready to Run



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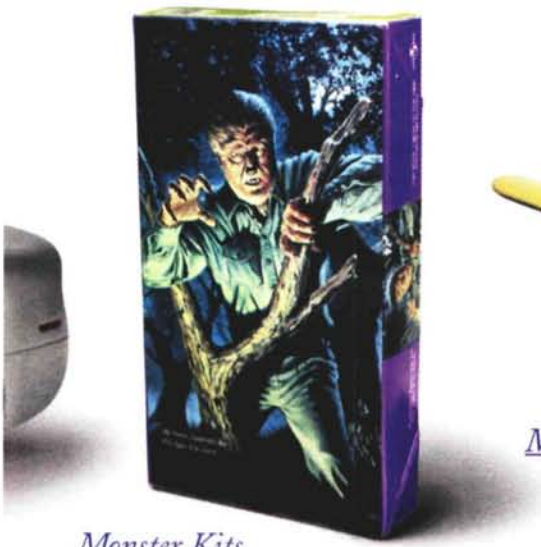

Monster Kits

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Channel SURFER

Futaba 9CAP

Futaba is aiming this 9-channel beauty at boat guys, but it's also a perfect match for tank commandos and any project with multiple RC functions, such as "battle 'bots," tractor-trailers and robot monkeys (c'mon ... you know you've always wanted an RC monkey). The top-of-the-line R138DP PCM receiver and two S3004 ball-bearing servos are included. And since the 9CAP is for surface use—it's on 75MHz—you won't freak out the local airplane club.

Futaba; distributed by Great Planes (800) 682-8948; futaba.com.

Pro-Line Volkswagen Jetta

Fans of Wolfsburg's finest can choose 190 and 200mm versions of the popular vee-dub, and finishing off the shell is easy, thanks to the usual Pro-Line pluses: wing, hardware, window masks, decal sheet and overspray film.

Pro-Line (909) 849-9781; pro-lineracing.com.

Betta Jetta

PRETTY PLEAZE

Crowd Pleazer NT

The swoopy, slammed style of Pro-Line's Crowd Pleazer buggy body comes to the truck world with the Crowd Pleazer XXX-NT. In addition to looking like nothing else on the track, the new bod should help shave lap times by lowering your truck's CG, and anything slammed as low as this lid has gotta be aero. Pro-Line has also announced a soon-to-be-released Crowd Pleazer custom fit for the Associated RC10GT. As with the Losi version, all the extras are included: window masks, wing, hardware, decals and overspray film.

Pro-Line (909) 849-9781; prolineracing.com.

FAT CIVIC

Protoform Honda Civic

No, I didn't mean to say "phat." Who the heck says "phat" anymore? This Civic is fat, as in 200mm wide and ready to stretch over your favorite nitro-touring platform. Overspray film, window masks, add-on wing with mounting hardware and a detailed sticker sheet are included—as always.

Protoform; distributed by Pro-Line (909) 849-9781; pro-lineracing.com. ■

readers' rides

BY BOB HASTINGS

YOUR BEST BUILDS

TOM KING, DES PLAINES, IL

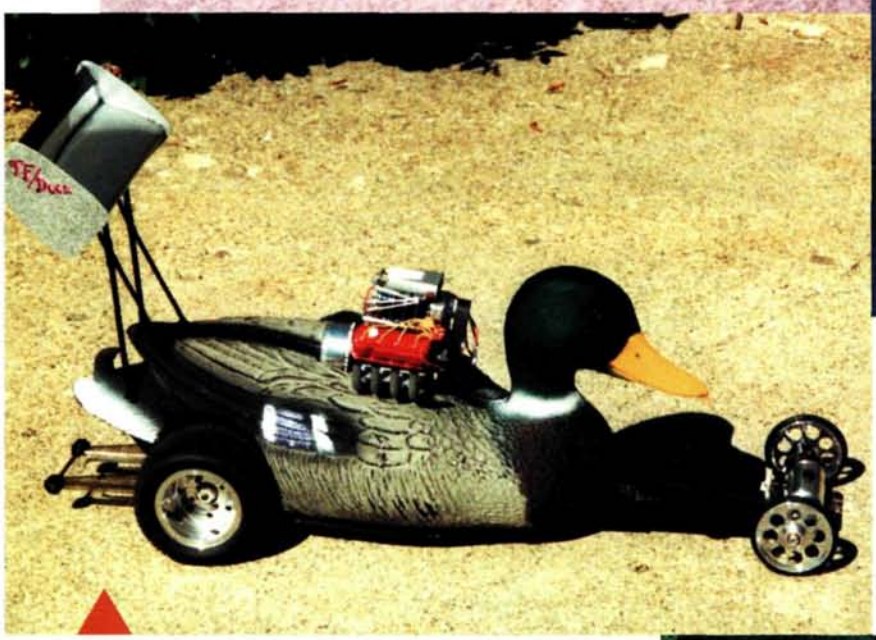
HPI RS4 SPORT

When this picture was taken, Tom had already scored a few victories with this chassis, but the Porsche body hadn't yet seen the track. The touring car is equipped with a 19T motor, Novak Rooster ESC, full bearings and is rigged to operate on 7 cells, so it goes as fast as it looks.

JAYA SINGAM, KUALA LUMPUR, WEST MALAYSIA

KYOSHO SUPER 10 FW-04

There's an excellent combination of colors and technique on this Super 10. The red and yellow Kyosho touring car is decked out in the "Tribal Mayhem" mask from XXX-Main. Beneath the Skyline body is an O.S. LD-X .12 engine for lower CG, 2-speed transmission and HPI springs, and for added grip, the sedan rides on K-Zero slicks.



MIKAEL NORMAN, LUDVIKA, DALARNA, SWEDEN

TAMIYA JUGGERNAUT 2

It doesn't matter where you live, the appeal of the hobby is worldwide. So if you think this Juggernaut 2 is sweet, I'd have to correct you and say uh, no—it's a Swede. The only information included with this photo was that this is Mikael's 14th RC vehicle. Since you didn't have to read much on this one, take a moment to enjoy the sights of beautiful downtown Ludvika.

JOHN F. BEECHER III, LAFAYETTE, IN

TOP FUEL DUCK

Do you remember the Billy Bass car from the March 2002 issue? It was only a matter of time before somebody cried "fowl." This is John's homebuilt, called Quacks—a custom fiberglass dragster that he created for a car show named the Ducktail Run. The Parma 426 Hemi engine is just for show; instead, Quacks is powered by a 7-cell battery. Quacks uses Hitec electronics and also sports aluminum wheels (would those be bill-et?), a front dropped axle and a custom fuel tank. Overall, I think you'll agree that this project is truly a feather in John's cap.

WIN A ONE-YEAR SUBSCRIPTION TO *RADIO CONTROL CAR ACTION* MAGAZINE!

Send a sharp, uncluttered, well-exposed color photo of your vehicle (no Polaroids) and a brief description to "Readers' Rides," *RC Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. If we publish your photo, you'll receive a free, one-year subscription to *RC Car Action* and will be eligible to win the "Reader's Ride of the Year Contest." Write your address and phone number on your letter and on the back of every photo you send. Good luck!

JARED TIPTON, SUNNYVALE, CA
TEAM ASSOCIATED RC10 B3

Inspired by the numerous project vehicles that appear here in the magazine, Jared took his B3 and set out to create his own project car. Over a 6-month period, he gathered the parts for and assembled this immaculate off-road buggy that features more than 45 upgrade components from Associated, LRP, Racers Edge, Progressive Suspension, HG, Team Orion, Pro-Line, Trinity, Niftech, Airtronics, Hitec, MIP, Lunsford, Robinson Racing and RPM.

READERS' RIDE OF THE MONTH

Everyone dreams, but few turn dreams into reality. Jared Tipton's project B3 is the result of a great deal of planning, time and—yes—money. By the time Jared was through, his buggy tipped the calculator just short of 1,700 clams. And they say that money can't buy happiness!

PAOLO MENINI, CAMPOGALLIANO, ITALY
TAMIYA MAMMOTH DUMP TRUCK AND CUSTOM BULLDOZER

If you need some help around the garden, call Paolo. He says he'll work cheaply, but the catch is that you'll need to bring him over from Italy. The Mammoth has working head, tail and stop lamps, full ball bearings and a Tamiya sound unit. The bulldozer began as a child's toy, but Paolo installed a 3-channel radio and Tamiya's DMD unit to operate the tracks and front blade.

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#379 11 Dbl.	#390 12 Sgl.	#341 10 Trp.
#380 10 Dbl.	#391 11 Sgl.	#342 9 Trp.
	#392 10 Sgl.	#343 8 Trp.

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JEFF WYATT, PINSON, AL

TRAXXAS T-MAXX

If you've seen the recent UPS commercials on TV, you know that they "want to race the truck." And while Dale Jarrett, driver of the no. 88 Ford Taurus, may resist driving the big brown delivery truck, We're sure he'd get a kick out of running Jeff's T-Maxx. The Traxxas monster is equipped with Pro-Line's Excursion body and Maxx Masher tires, Traxxas Big Bore shocks, RPM wheels and the Winston Cup sticker package by Slixx.

SAM COAKLEY, HENDERSONVILLE, NV

ASSOCIATED RC10GT RTR

The cool thing about RC is that you can drive anything you want. Sam added his own personal touch to his RC10GT by installing the HPI Camaro SS body onto the stadium truck chassis. In place of the stock engine is a Novarossi CX12S, and the truck/car now has MIP CVDs, Pro-Line Dirt Works tires and RPM Clawz wheels.

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pit tips

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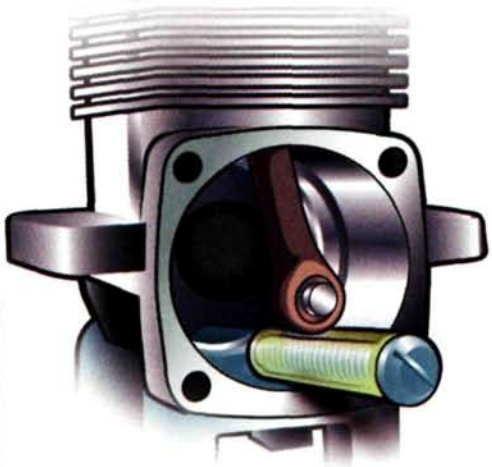
HINTS, TRICKS, TIPS AND IDEAS FROM READERS LIKE YOU

ILLUSTRATIONS BY DAVID BAKER

EASY BODY CUSTOMIZING

To make your RTR's prepainted body stand out from the rest, use electrical tape as striping tape. It's inexpensive, can be stretched around curves and is available in a variety of colors. When you're ready for a new look, just pull off the tape; it won't leave a messy residue.

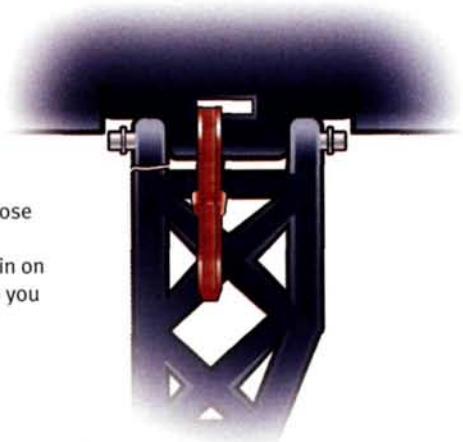
DYLAN DICKEY
Colorado Springs, CO



HOMEMADE CRANKSHAFT LOCKING TOOL

If you need to lock your engine's crank in the field and don't have a crank-locking tool, slip a piece of fuel tubing over an Allen key or screw and place it between the connecting rod and engine block. Only use this technique for light-duty work; heavy wrenching will tear the fuel tubing, and the Allen key will make a divot in the conrod.

KEVIN DUNN
Fresno, CA



QUICK SUSPENSION-ARM FIX

If your suspension arm breaks close to the chassis, thread a zip-tie through the arm and the hinge pin on the chassis as a temporary fix so you can continue running.

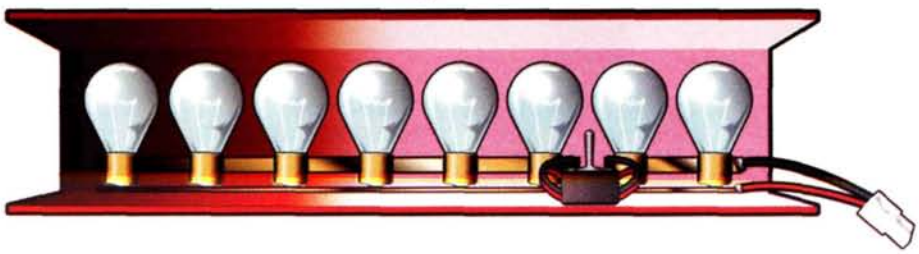
MICHAEL PASCOE
Granite City, IL

OFNA PICCO TOP TIP

VERSATILE BULB DISCHARGER

An easy way to make your bulb discharger more versatile is to solder a switch between the bulbs so that you can have two discharge rates. Depending on the rate you require, the switch can be placed between any of the bulbs.

KEITH WALKER
Lombard, IL



BETTER GRIP FOR SCREW HEADS

When you're faced with a stubborn screw that won't budge, use valve-grinding compound (found at automotive stores) for extra "traction." A small drop of the compound on the tip of your screwdriver will help it get a good bite and avoid stripping the screw head.

BILL JEBLICK
Hampton, VA

WIN AN OFNA YO-YO, OFNA OB4 AND *RC CAR ACTION* SUBSCRIPTION! SEE NEXT PAGE FOR DETAILS.

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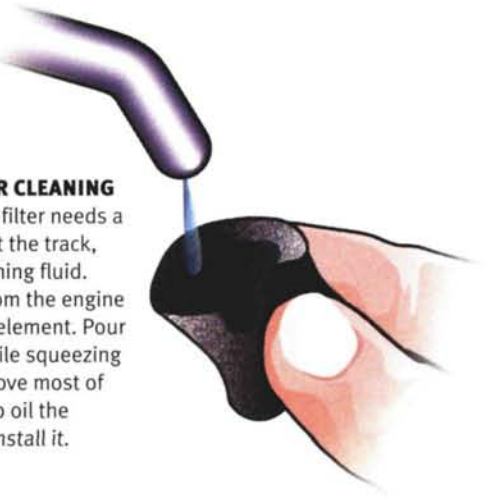
SHOCK PRELOAD CLIP SUBSTITUTE
If you don't have enough preload spacers for the ride-height setting you need, substitute zip-ties for the clip-on spacers.
ANDREW ANDERSON
South Lyon, MI



TRACKSIDE AIR FILTER CLEANING
If you find that your air filter needs a cleaning while you're at the track, use glow fuel as a cleaning fluid. Remove the air filter from the engine and take out the foam element. Pour fuel on the element while squeezing the foam. This will remove most of the grime; remember to oil the element before you reinstall it.
BRAD WARREN
El Cajon, CA

FOAM INSERT SUBSTITUTE
Kitchen sponges can be used as inexpensive foam inserts for your play or practice tires. Use soft foam sponges—not the lumpy cellulose type. Cut it into rectangles that correspond to the dimensions of the tires you are using. The length of each rectangle should match the circumference of the rim, and the width should be the same as the rim's.
DUSTIN BAKER
Louisville, KY

LASTING WHEEL PAINT
Paint tends to chip and flake easily when applied to wheels. To make it stick, pick up a can of adhesion promoter at an auto-parts store. Use it to prime the wheels before you lay down your color, and you'll find that the paint lasts much longer.
WALTER EVERITT
Bensalem, PA

BODY-CLIP HOLDER
A key ring (the larger, the better) makes a great body-clip holder. You can even also attach a small chain to the key ring and hang it from your toolbox or belt (no one will make fun of you—really). No more scrambling for body clips right before the A-main.
DAVID ROBERTSON
Broken Bow, NE

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troubleshooting

BY GEORGE M. GONZALEZ

YOU'VE GOT PROBLEMS? WE'VE GOT FIXES.

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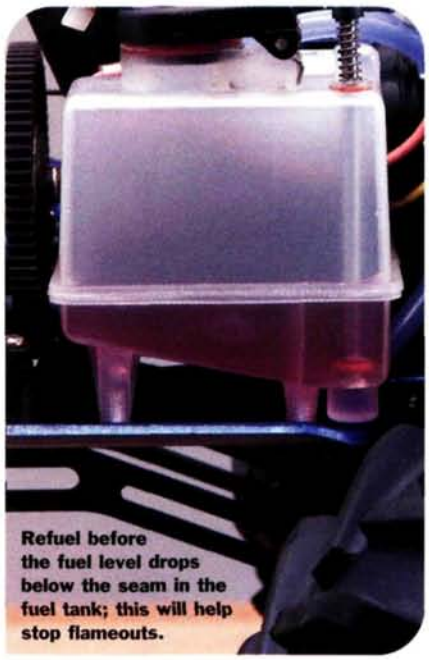
Turn the high- and low-end needle valves counterclockwise for a richer setting.

FLAMEOUT BLUES

I own a Traxxas T-Maxx that's pretty much stock, except I installed RPM wide offset rims and Pro-Line Maxx Masher tires. I have two problems with the TRX .15 engine: the engine starts up fine when it's cold, but when it's hot, it takes forever to restart. Also, I can never finish a 5-minute heat without the engine stalling during the last 30 seconds of the race. Do you have any advice that might help solve these problems?

Bob Smith
Montrose, CA

A The TRX .15 engine can be hard to start after a flameout. Set up the carb's high- and low-speed needle valves so that the engine runs rich; this will prevent flameouts from happening in the first place. For some reason, the T-Maxx's carburetor settings become leaner as fuel drains from the tank. By the time the fuel tank is ⅔ empty, the engine starts to run hot, and that is why your truck stalls on the last few laps of the race. Set up the carb so that the engine runs overly rich. The truck will be a little sluggish initially, but after the engine has run a couple of minutes, it will lean out and run stronger. When you're out bashing around your neighborhood (not competing), never let the fuel go below the seam in the fuel tank. Condition yourself to refuel more often, and you shouldn't have any more flameout problems.



Refuel before the fuel level drops below the seam in the fuel tank; this will help stop flameouts.

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Traxxas Lightened Spur And Double-Disc™ Slipper Kits

RRP's NEW line of Lightened Spur and Double-Disc Slipper Kits for Traxxas Nitro and T/E-Maxx trucks are designed to improve performance and increase reliability. This combo incorporates a machined steel or Super-Tough plastic spur, a Vented Aluminum Clutch-Plate/Gear Adaptor (small or large), 2 Slipper Pads and 2 Plates to deliver the adjustability you need and the increased performance that you demand. **Complete Slipper Kits** are available in the following sizes:
RRP 8166 Slipper Kit with 66T Super-Tough plastic spur (Stock Size) for E-Maxx
RRP 8172 Slipper Kit with 72T Super-Tough plastic spur for Traxxas Nitro
RRP 8465 Slipper Kit with 65T Steel Spur for Traxxas Nitro
RRP 8472 Slipper Kit with 72T Steel Spur (Stock Size) for T-Maxx
Spurs, Clutch-Plate/Gear Adaptor and Slipper Pads also sold separately.

Nitro and T/E-Maxx Accessory Spurs

A wide range of spurs fit our Double-Disc Slipper Kits. Choose from machined Super-Tough plastic spurs in 66, 68, 70, 72 and 76T sizes, RRP 82XX, or CNC machined steel spurs available in 65, 72 and 76T sizes, RRP 83XX. Small Clutch Plate/Gear Adaptor fits 65 thru 70T spurs. Large Clutch Plate/Gear Adaptor fits 72 thru 76T spurs.

48P Absolute Series Pinions

Super hard, lightened and cut with unmatched precision. Great with any spur, but with an Absolute spur, even on-off noise is gone! Available In 48P in 16T thru 28T sizes. RRP 1416 - RRP 1428.

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Traxxas Nitro Hardened Steel Clutchbells

CNC Machined from solid steel these bells are built to last. They take the 5x11 bearing (NOT included). Available in 19T, RRP 8119, 20T RRP 8120, 21T RRP 8121 and 23T RRP 8123.

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These precision cut gears have an extremely hard coating that makes them really last. Available in 12T thru 35T.
RRP 1012 - RRP 1035

T-Maxx Forward ONLY Hardened Gear Kit

This kit contains a 26T hardened aluminum output gear, a forward drive hub adaptor and spacer. RRP 8585

T-Maxx Hardened Forward Primary Gear

Machined from solid aluminum and hard coated. A direct replacement for the stock gear. RRP 8528

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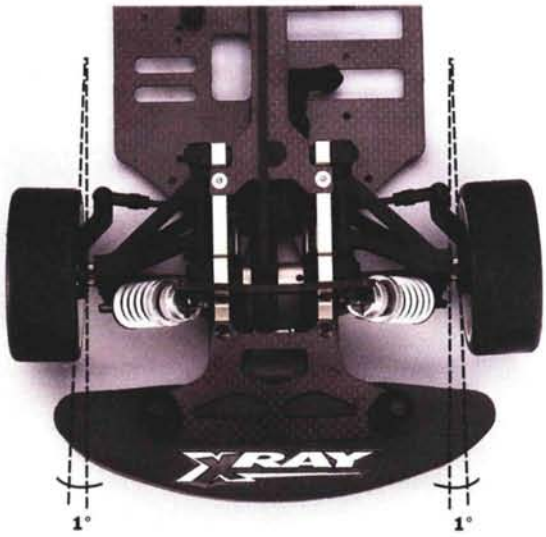
BIG 6 WON'T TURN

I bought a slightly used Schumacher 1/8-scale Lotus Sport Nitro from a friend, and I'm happy with the car's speed. The problem is that the car doesn't turn very well at high speeds. I have to slow it down excessively to be able to make even the widest turns. Is there any way I could tune in a little more steering? Also, is there a way to install a single fuel tank to replace the dual fuel tanks that are installed now? I get tired of having to fill up two fuel tanks every five minutes or so.

Mike Delgado
Palm Beach, FL

To increase on-power steering response on any car quickly and easily, use self-adhesive lead weight.



Improve on-power steering by dialing in 1 degree of toe-out.

Your Lotus is a big car, but it will respond well to the usual tuning tricks used for 1/10-scale cars. There are a few options that will improve your car's on-power steering. Set up the brake linkage to provide a little braking force when your transmitter's throttle trigger is in the neutral position (drag brake). This way, when you let off the throttle, the brakes will kick in slightly, and that will transfer weight to the front tires and provide more steering. Another option is to add weight to the front of the chassis. Great Planes has a perfect product for this purpose: self-adhesive lead weights. Setting up the front tires with approximately 1 degree of toe-out will also provide more on-power steering; however, adding toe-out will make the vehicle less stable on the high-speed sections of the track. Schumacher offers a tuned spring set, softer compound tires and various silicone shock-fluid viscosities. If you're willing to spend some dough, you might want to experiment with these items that will allow you to precisely tune your Lotus.

Once you remove the fuel tanks and radio tray, you'll find many mounting options to install a single fuel tank. You'll probably need to drill holes through the chassis to mount the fuel tank, though. Or, you could make a fuel-tank mounting platform out of fiberglass or Kydex and use the original radio-tray mounting holes that are already drilled and countersunk in the chassis.

NEW T-Maxx Steel Diff Gear Set

T-Maxx / E-Maxx differential gear set, includes: 1 beveled pinion gear, 1 beveled spur gear, 4 re-usable stainless steel phillips head screws, 1 tube Associated Black Grease, and a shim kit for spider gears with 10 .003" shims. 2 sets needed per truck. RRP 8590

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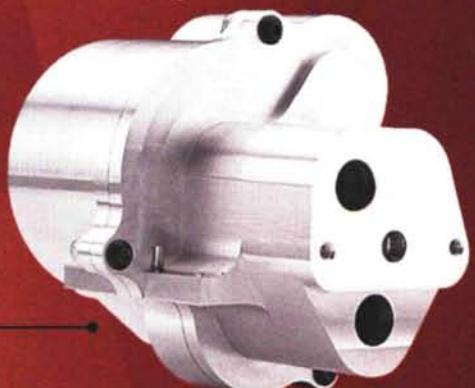

Precision CNC machined from aircraft grade billet aluminum this Forward ONLY Racing Gearbox will give your T-Maxx a serious competitive edge. RRP 8595

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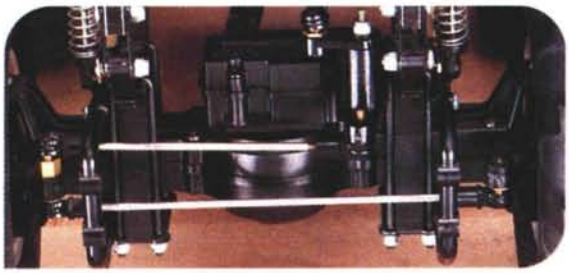
MAJOR CASE OF TORQUE STEER

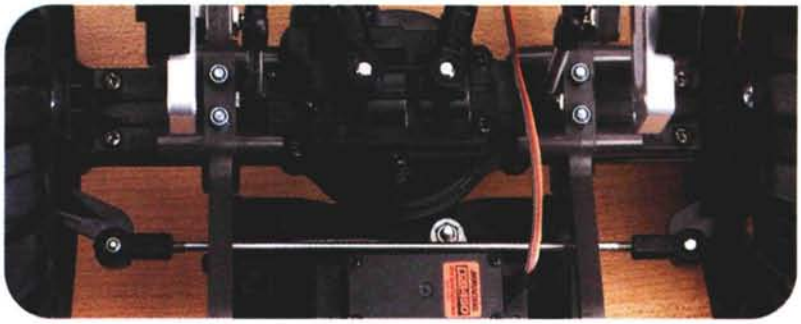
I have an original Juggernaut with the Jugg 2 drive-train upgrades. I installed a pair of Trinity Maxx Mod 19-turn motors, and I use the Traxxas/Novak EVX 14V ESC and two 2400mAh 6-cell battery packs wired in series for maximum voltage. The truck has so much torque that the chassis twists and wheelies whenever I squeeze the trigger. The chassis twist causes the truck to steer to the right, and when I back off the throttle, the truck suddenly veers to the left and makes it impossible to drive. I noticed that the new Tamiya TXT-1 has the steering servo mounted on the straight axle instead of on the chassis as it is on my truck. Can I convert my Jugg to have the steering servo on the axle like on the TXT-1? Do you think that installing the steering servo on the axle would resolve my problems?

Andy Pierce
Flint, MI



The steering servo on the Jugg 2 is mounted mid-chassis. As the suspension is compressed, the steering inputs become erratic because the chassis and front axle move in different planes. Added linkages are necessary to span the distance from the center to the front axle, thus creating more slop in the steering setup.

On the TXT-1, the steering servo is on the front axle, which eliminates the two problems inherent in the Jugg 2's steering design.



This is more of a "how-to" question than a troubleshooting matter, but I'll answer it because I've been down that same road with my Jugg 2 monster truck. To answer your second question: yes, installing the servo on the front straight axle will help resolve your truck's steering problem. There are two ways to install your steering servo on your truck's front axle. The first requires you to buy a bunch of TXT-1 parts that will be bolted on your Jugg without modifications. A more economical way is to make the parts yourself. All you'll need is an RPM Stampede ESC mount (part no. 80362), four long ball cups (RPM's Super Duty rod ends [no. 73360] work the best), four 3x20mm machine screws and a pair of servo mounts. You'll also need a 2-inch tie rod and a couple of rod ends to make a steering link.

With a pair of side cutters, cut off the ball-cup portion from the ball ends, which will leave you with four ½-inch molded posts. Use the ESC mount as a platform on which to mount the servo. Drill four holes in the platform to install it on the front axle. Drill two additional holes through the platform to install the servo mounts that will secure the steering servo. Once you've drilled the holes and installed the servo on the platform, pass the screws through the platform and then install the four molded posts over the screws. Remove the four self-tapping screws that hold the ring-and-pinion-gear access cover to the front axle, and then thread in the screws with the molded posts attached.

RS4 Nitro Aluminum Brake Kit

Lightweight aluminum, variable braking system. RRP 1575

RS4 Nitro Vented Flywheel

Aluminum vented flywheels move air over clutch bell, improving performance and cooling.
RRP 1570
RRP 1571 Pull Start

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These precision machined spur gears are super quiet. They're available in 48P in 60T thru 96T sizes, and fit any HPI electric car or truck.
RRP 1860 thru RRP 1896.

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Hardened drive pulleys, sold in pairs.
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One piece pulley and shaft are precision cut and hard anodized. Purple anodized side flanges are pressed on. RRP 1527

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40% lighter than stock ball diff outdrives. RRP 1585

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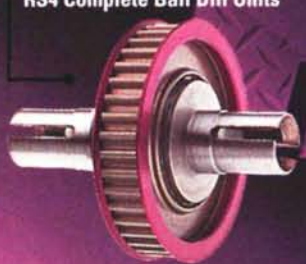
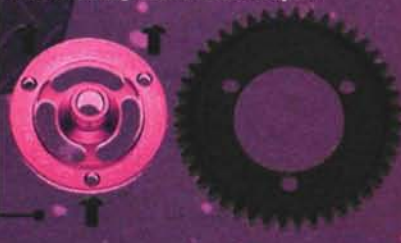


Hardened steel outdrives, ground and polished thrust washers, 2 5x8mm ball bearings, and aluminum pulley.
RRP 1590 Electric
RRP 1595 Nitro

RS4 Diff Pulleys

Precision machined, hard anodized aluminum diff pulleys.
RRP 1539 nitro sedans
RRP 1528 electric sedans

RS4 Nitro Lightened Gear Adapter

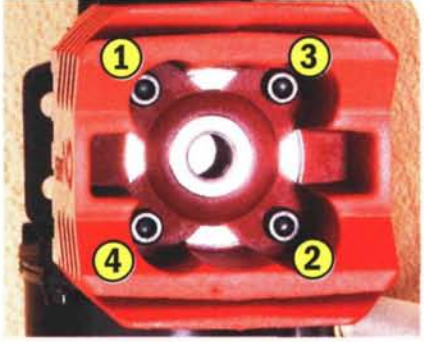


This lightened gear adapter includes a machined nylon spur that's tougher than the stock gear and will last longer.
RRP 1535

RS4 Nitro 32 Pitch Conversion Kit is available. RRP 1536

LEAKY ENGINE

Hello, troubleshooting gurus. I hope you can help with a problem because I'm about to give up and shelve my truck permanently. I own an Associated RC10GT that's equipped with an O.S. CV Hyper12 engine. When I start the engine, fuel spits out from under the cooling head. The engine runs if I feed it constant throttle, but it will not idle and dies the moment I let off the throttle. Please help! [email] *William*



Tighten the screws following the number sequence to ensure a proper seat between the cooling head and engine block.

Inspect the head gasket; if you find any damage, replace it.

Wow! You must have crashed the truck really hard once or twice because I've never seen an engine act like yours. Start by removing the cooling head from your engine. If the screws that secure the head to the engine block are bent in any way, the engine has taken a hard knock. Replace any bent screws. Next, check the condition of the head gasket, which is basically a thin aluminum shim that's installed inside the cooling head. If the gasket is bent or damaged, replace it. After you've installed the new head gasket and screws, reinstall the cooling head on the engine. Be sure to tighten the cooling-head mounting screws as shown to ensure that the head is properly seated on the engine block. If your engine still leaks fuel after the fix, it's time to buy a new cooling head.

TOOLBOX

NIFTECH TAPERED REAMER

Niftech's tapered reamer does all the things you buy a reamer for. Use it to make holes in Lexan bodies, for example, or to enlarge existing holes, such as those on chassis plates. It does not matter which type of material you use; the reamer works great on all, and it will create or open from ⅛- to ½-inch holes. The sharp point on the reamer's end prevents the tool from moving when you make holes, and the sharp edges allow clean cuts. The reamer's large handle offers excellent control and grip.

Part no. 3601; $19.95.
Niftech (440) 257-6018; www.niftech.com.

NEED **HELP?**
Send your "Troubleshooting" questions and comments to George M. Gonzalez, georgeg@airage.com

RC10-GT Steel Combo

Precision machined from solid steel, then hardened, this 65T spur and 15T bell combo will last and last. The extra-hardened clutch bell fits ALL Associated and MIP shoes. RRP 2365

Hardened Steel Idler Gear

Cut from solid steel stock, this gear is lightened and hardened for super quiet precision and extra long life. Jammin' tranny grease is included. RRP 2213 RC10-GT, RRP 7505 Ultima GP-R

Associated Titanium Stealth Top Shaft

CNC Machined from solid titanium, this super hard, super light top shaft will fit any Stealth transmission. RRP 1512.

Hardened Diff Gear

Hard anodized, precision CNC machined aluminum diff gear. RRP 1513 RC10-GT RRP 7500 Ultima GP/EP-R

www.robinsonracing.com

Aluminum Outdrives

40% lighter than stock ball diff outdrives. RRP 1475 TC3, RRP 1502 B3/T3

Blue Lightened Slipper Kit

The rear plate is hard anodized and the front plate is color treated. The front plate holds the pad forcing it to slip on the rear plate. When pad wears, just flip it over for a new surface. RRP 1515 Associated, RRP 7515 Kyosho Ultima

TC3 Ultra 48 Pitch Spurs

Precision machined from heat-resistant plastic, these spurs mesh flawlessly with our pinions. Available in even numbers from 70T thru 80T, RRP 1670 RRP 1680.

ROBINSON RACING PRODUCTS
4968 Meadow View Drive · Mariposa, CA 95338 · Voice 209.966.2465 · Fax 209.966.5937

Micro-Car MELT

Performance-testing the newest mini-mobiles

by Paul Onorato

Small is in. The new generation of micro and mini cars is RC's hottest new category. You can race in the living room (or, with some models, even on a tabletop), and the little cars have all the technical appeal and upgrade potential of "big" RC machines. The selection of mini and micro cars is diverse: palm-size to 1/18 scale, hard body or Lexan, 2WD or 4WD ... plus there's a deep aftermarket of parts to personalize these pint-size rides. We put five of the most popular micros through their paces to see how they'd compare. If you're interested in comparing dimensions, look no further. Here they are, actual size!

GRP
MODEL RACING PRODUCTS
Super Machine
RADIO CONTROL
car action

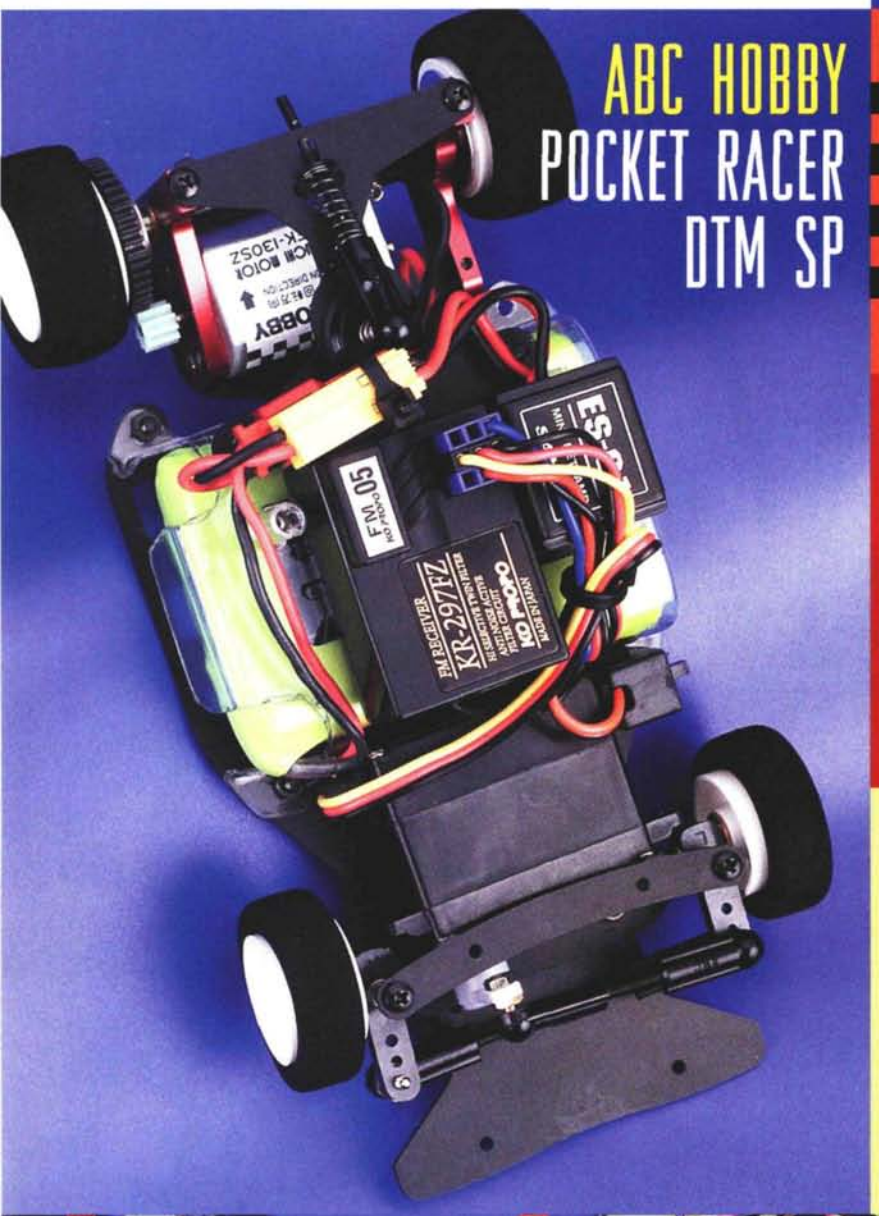
DOWN!

SHOWA
OZ
Castrol
16
AUTOBACS
KTC
NGK
KYOSHO
BRIDGESTONE

M3
RS4
BMW MOTORSPORT

Micro-Car Meltdown

The Pocket Racer DTM SP was designed to keep us diehard RC'ers running even when the weather won't cooperate. At about 7 inches, the DTM SP is small enough to run on a pool table but has fast enough speed for a larger area. It's basically a scaled-down pan car and features a fiberglass chassis, an aluminum motor mount, a ball diff, coil springs to support the front hubs and a T-plate with upper damper for the rear suspension. The adjustable wheelbase offers three choices: 105mm, 110mm and 115mm. Because the chassis is small, a miniservo and a mini ESC are required, and you'll need to pick up a 1/24-body to finish it off; ABC offers a variety of them.



ABC HOBBY POCKET RACER DTM SP

SPECIFICATIONS

Manufacturer ABC Hobby
Model Pocket Racer DTM SP
Scale 1/24
Overall length 7.36 in. (187mm)
Wheelbase 4.09 in. (104mm)
Weight 8.32 oz. (236g)
Top speed 10.6mph
Street price $85
(price varies with dealer)

YOU'LL NEED

- 2-channel radio system with a mini steering servo
- ESC (the smaller the better)
- ABC 305 mAh battery pack
- Battery charger
- 1/24-scale body

THE RIDE

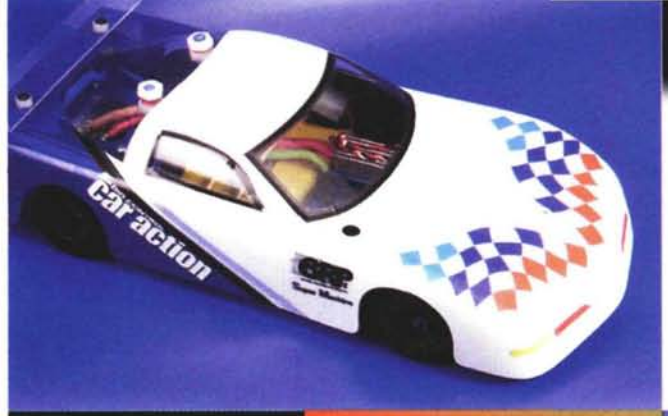
The DTM SP surprised us with its quick acceleration. Out of the five micros tested, it was clearly the fastest off the line and registered a top speed of 10.6mph. With ABC's 350-mAh battery pack, I was able to get a full 20 minutes of run time before the battery died. The foam tires hooked up well on most surfaces, and they work better on carpet than rubber tires. Without the ability to dial out some steering, the car was difficult to control going into the corners, but its short wheelbase made the DTM SP easy to maneuver in tight areas.

MOD SQUAD

BEST PERFORMANCE MODS	SOURCE
Carbon chassis	ABC Hobby
Mini 180SH motor	ABC Hobby
Ball-bearing set	ABC Hobby
Safety bumper	ABC Hobby

BEST STYLE MODS	SOURCE
Jaguar XJR-9 body	ABC Hobby
Nissan Skyline GTR body	ABC Hobby
Toyota GT1 TS020 body	ABC Hobby
Subaru Impreza WRX body	ABC Hobby

1. The steering arms are built with the steering-rod connection point in front of the kingpin instead of behind. Notice the spring above the arm; it acts as the front suspension. 2. The front steering setup is clear-cut and works great in pointing the DTM in the right direction. 3. A 10-tooth pinion drives the rear axle's ball diff. The red-anodized-aluminum motor mount provides a sturdy base for the rear pod.



BRP Racing has been in the micro business for close to 10 years (remember the Oval Outlaw?). Its Super Car 18 (SC18) has a newly designed chassis that mimics a pan car with its fiberglass chassis, T-plate, rear pod and front steering blocks. It has room for standard-size radio equipment, so you won't have to buy specialized radio components.

The chassis is easy to work on. To adjust the rear damping, vary the spring preload on the damper-disc assembly, or change the weight of the grease used on the discs. The front wheels are supported by springs that ride on the steering kingpins—pan-car style. The battery pack (not included) is positioned near the rear of the car for added traction, and the included foam tires work well on most surfaces.

YOU'LL NEED

- 2-channel radio system
- ESC
- BRP AA Ni-Cd battery pack
- Battery charger
- Polycarbonate-compatible paint

SPECIFICATIONS

Manufacturer BRP Racing
Model Super Car 18
Scale 1/18
Overall length 10.03 in. (255mm)
Wheelbase 5.83 in. (148mm)
Weight 16.64 oz. (472g)
Top speed 21.1mph
Street price $90
(price varies with dealer)

THE RIDE

This thing is fast! The SC18 posted a top speed of 21.1mph—impressive numbers for an 1/18-scale car. To exploit this speed, you'll need a large area such as an indoor carpet track. With the power from 6 cells, a living room with a lot of furniture just won't do; try a lower-power 4-cell pack for tooling around the house. Its foam tires work fine on most surfaces, but they functioned best on low-pile carpet. A cool trait of the SC18 is that it easily recovers when the rear tries to swap ends with the front. We had a lot of fun making aggressive turns; kicking its rear end out and then counter-steering to reel it back in. The Super Car 18 may be small, but it has big-car handling.

MOD SQUAD

BEST PERFORMANCE MODS	SOURCE
Ball differential	BRP Racing
Progressive-rate springs	BRP Racing
HPI Micro RS4 wheel-adapter hubs	BRP Racing
XP Super-power 16D motor magnets	BRP Racing
Hard-compound tires	BRP Racing

BEST STYLE MODS	SOURCE
Ferrari F-40 body	BRP Racing
Porsche 911-T body	BRP Racing
Stock car body	BRP Racing
Mercedes 190-E body	BRP Racing

MICRO-CAR MELTDOWN
FASTEST 21MPH

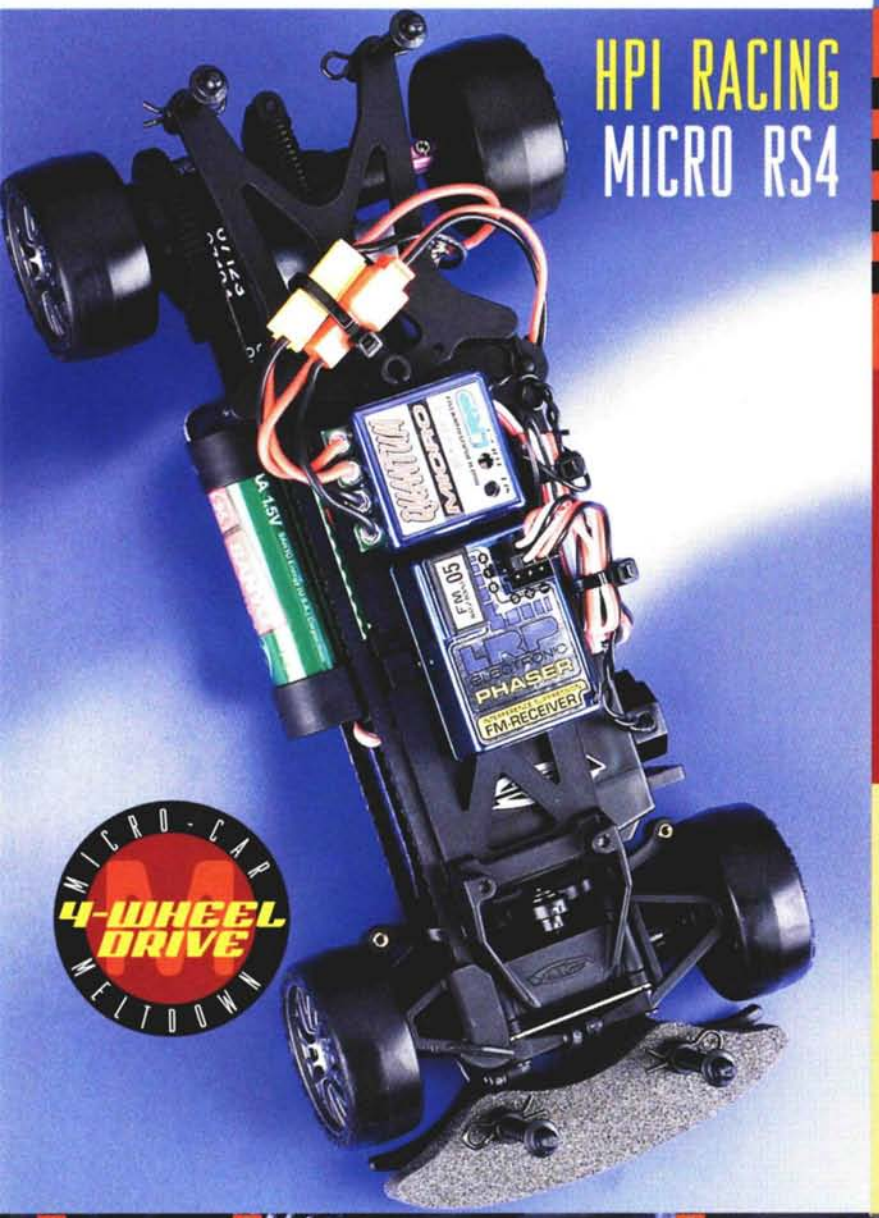
BRP RACING SUPER CAR 18

1. Instead of the stock solid axle, move up to the optional ball diff; it makes a world of difference. 2. The rear damper plate gives you two ways to adjust the rear suspension; to change the spring tension, you can use heavier or lighter lubricant on the plate, or you can move the plastic collar. 3. The steering blocks are similar to those used in pan cars; springs are installed on the kingpins for shock absorption. The Super Car's thick, fiberglass chassis provides plenty of strength, so it doesn't need an upper deck.

Micro-Car Meltdown

Even at 1/18 scale, HPI Racing's Micro RS4 has room for full-size radio gear and a standard servo. The double-deck chassis design has a single-belt 4WD system and front and rear gear differentials. A solid rear axle spins the back wheels, while tiny, plastic universal axles are used up front. The front suspension absorbs bumps with tiny inboard springs, and a T-plate and spring support the rear axle.

The kit includes a motor, three wheel styles, rubber tires and full ball bearings; it has two battery holders: one holds four AA or AAA batteries, and the other accepts 5- or 6-cell Ni-Cd or NiMH battery packs. HPI also includes a polycarbonate body, complete with window masks, overspray film and die-cut decal sheets to make detailing easy.



SPECIFICATIONS

Manufacturer HPI Racing
Model Micro RS4
Scale 1/18
Overall length 9.45 in. (240mm)
Wheelbase 5.91 in. (150mm)
Weight 14.08 oz. (399g)
Top speed 13mph
Street price $110
(price varies with dealer)

YOU'LL NEED

- 2-channel radio system
- ESC
- 4 AA or AAA batteries or a 5- to 6-cell Ni-Cd or NiMH battery pack
- Polycarbonate-compatible paint
- Tire glue

THE RIDE

The Micro RS4 stands out from the rest because of its belt-driven 4WD system. The RS4 showed good acceleration and excellent straight-line tracking, and it handled well in tight turns on high-grip surfaces. On carpet, the back end tended to break traction, but modulating the throttle through the turn lessens that.

For the first phase of testing, I used 4 AA alkaline batteries. The RS4 managed 13mph and ran for a little more than an hour. Next, I dropped in rechargeable batteries. A Team Orion 5-cell NiMH pack boosted the RS4's top speed to 15.1mph; Trinity's 6-cell NiMH pack delivered 18.3mph and more than 50 minutes of fun.

MOD SQUAD

BEST PERFORMANCE MODS	SOURCES
Modified motor	HPI Racing Megatech Team Orion
5- or 6-cell pack	HPI Racing Orion Trinity
Titanium chassis	Hardcore Racing

BEST STYLE MODS	SOURCES
Aluminum wheels	Golden Horizon, Hardcore Racing
Plastic wheels	HPI Racing, Megatech, Venom Racing

1. The chassis width is easily adjusted thanks to the different-length grooves on the wheel hub, and the hub tapers for a friction-fit for the wheel. HPI includes decals of brake discs to add to the scale appearance. 2. A purple-anodized aluminum motor plate keeps the gear mesh consistent and dissipates heat from the motor. 3. The front steering knuckle is a scaled-down version of that found in a 1/10-scale touring car; upper and lower A-arms keep it in place. Ball bearings spin throughout the drive train, and a urethane bumper protects the front end. 4. The cantilevered front suspension works well to smooth out the ride. Universal front axles and a front gear diff (purple cylinder) are unexpected in a micro car.

Kyosho's Mini-Z is completely RTR, with the exception of batteries. By far the most scale looking of the bunch, there are more than 10 highly detailed Mini-Z bodies to choose from and a choice of color for each body type. Rubber slick tires mounted on one-piece plastic wheels spin at all four corners. The front hubs slide up and down on kingpins and are damped by inboard-mounted springs, and a flexible, plastic plate supports the rear pod and also acts as the rear suspension. The chassis is built to hold only AAA-size batteries, which are mounted on the sides of the chassis and held in place with plastic clips. The included Kyosho Perfex transmitter features adjustable dual-rate steering (a nice plus for such a tiny car), and the Mini-Z's integrated ESC and steering servo perform well.

YOU'LL NEED

- 4 AAA batteries (alkaline or rechargeable)
- 8 AA batteries (alkaline or rechargeable)

SPECIFICATIONS

Manufacturer Kyosho
Model Mini-Z
Scale 1/24
Overall length 6.5 in. (165mm)
Wheelbase 3.7 in. (94mm)
Weight 6.24 oz. (177g)
Top speed 11.8mph
Street price $140
(price varies with dealer)

THE RIDE

Kyosho's Mini-Z is at home running in the house, being driven from one room to another. Agility is clearly a strength; the Mini-Z easily negotiated obstacles. If the surface was slightly bumpy, such as with a textured carpet, the chassis bounced considerably because of the meager amount of suspension. The Mini-Z runs best on smooth surfaces such as hardwood floors, low-pile carpet and tennis courts.

After a little more than an hour of indoor racing, the four AAA batteries finally threw in the towel. That's a long time by any RC-racing measure, but especially when you consider the Mini-Z's top speed of almost 12mph.

MOD SQUAD

BEST PERFORMANCE MODS	SOURCES
Rear-suspension systems	Megatech
Ball differential:	Megatech
	GPM

BEST STYLE MODS	SOURCES
Aluminum exhausts	Megatech
Aluminum wheels	GPM
	Megatech

KYOSHO MINI-Z

MICRO-CAR MOST DETAILED MELTDOWN

MICRO-CAR RTR MELTDOWN

1. The Mini-Z motor with three pinions to change the gear ratio. Spacers on the motor keep the pinion and diff properly meshed when different pinions are used. The motor comes out easily once the plastic retainer is unsnapped. 2. The front steering arms travel up and down the kingpin, and inboard-mounted springs handle the front suspension. 3. A plastic pinion is pressed onto the motor shaft and spins a plastic gear diff. The flexible plastic strap that connects the rear pod to the front also provides suspension action.

Micro-Car Meltdown

Similar to the sedan Mini-Z, the F1 version is RTR and powered by four AAA cells. It looks awesome with its realistic detailing (right down to its grooved tires), but it uses an entirely different chassis. Kyosho had to create a chassis to fit a narrow F1 car and arrived at a monocoque design. The onboard electronics are all on one circuit board, and the steering servo has been designed to fit into the long nose of the chassis, minus the usual servo housing (every millimeter of space is precious!).

The front end uses small springs over the kingpins for suspension, while the rear relies on chassis-plate flex and springs of its own. Like the Mini-Z sedans, the F1 includes Kyosho's dual-rate-equipped Perfex transmitter.

KYOSHO MINI-Z F1

SPECIFICATIONS

Manufacturer	Kyosho
Model	Mini-Z F1
Scale	1/24
Overall length	7.8 in. (198mm)
Wheelbase	5.12 in. (130mm)
Weight	6.72 oz. (191g)
Top speed	13.7mph
Street price	$160 *(price varies with dealer)*

YOU'LL NEED

- 4 AAA batteries (alkaline or rechargeable)
- 8 AA batteries (alkaline or rechargeable)

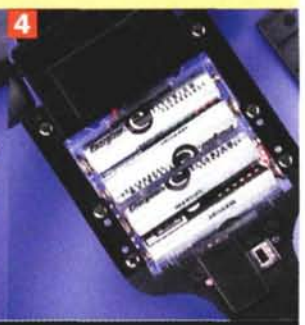
THE RIDE

We tested the Mini-Z F1 on a tennis court and on low-pile carpet because of its minimal ground clearance. But we didn't test just one F1, we ran the Williams BMW, Ferrari, Jordan Honda and McLaren Mercedes versions in a lilliputian grand prix. With a fresh set of alkaline batteries, the F1 produced a radar-confirmed speed of 13.7mph—plenty of speed for a tight track. The fully proportional controls and the addition of braking circuitry (something the regular Mini-Z does not have), make for smooth operation. The long wheelbase offers straight-line tracking, but at times, the rear end broke loose in turns. When the tires are clean, on high-grip surfaces, the F1 reacts quickly to steering inputs, but in tight corners, the rear end tends to hop.

MOD SQUAD

BEST PERFORMANCE MODS	SOURCE
X-Speed motor V	Kyosho
Rear shock set	Kyosho
High-grip tires	Kyosho
Ball-diff set	Kyosho

BEST STYLE MODS	SOURCE
There aren't any eye-candy upgrades for the F1 cars yet. But do they really need any?	



1. Three optional pinions are included (7-, 8- and 9-tooth) to adjust top speed, acceleration and run time. The stock setup uses a 6-tooth pinion that yields the longest run time with the slowest top speed. 2. A clear bumper to protect the front end is included, but it takes away from the scale look of the Mini-Z F1. 3. For suspension, the front steering arms ride on kingpins with springs mounted on them. 4. Four AAA batteries are installed under a panel in the bottom of the car. This keeps the center of gravity low.

Editors' picks

Paul Onorato

Being a diehard full-scale race fan and taking into consideration that these micros are not full-blown touring cars and are intended more for sheer fun, the Kyosho Mini-Z F1 gets my vote. The awesome-looking highly detailed bodies with their realistic grooved tires, front and rear wings and even the bargeboards make them hard to resist. Then, when I considered that the car arrives ready for action right out of the box and that it's agile enough to run in a living room, the choice was clear to me.

Peter Vieira

I was torn between the BRP car for its sheer speed and the HPI Micro RS4 for its technical features and deep pool of aftermarket parts. My final pick? The BRP Super Car 18. It's fast, it's simple, and if the black donut wheels don't suit you, get BRP's adapters and run Micro RS4 wheels! The BRP is also just about bombproof, and for me, a good micro car is one I don't have to work on.

Bob Hastings

For instant fun and scale realism I like the Kyosho Mini-Z, and if this had been solely an indoor comparison, it would probably have run away with my vote. But based on overall handling on less than perfect surfaces, speed and durability, my pick is the HPI Micro RS4. The car is large enough to carry a race transponder, has plenty of hop-ups readily available and includes a nicely detailed, paint-it-yourself body, and it just feels more substantial than the other players.

Greg Vogel

When I first got behind the wheel of an HPI Micro RS4 at the Chicago Hobby Show in 2001, I immediately knew that I had to have one. Its handling and driving characteristics make it much better than micro cars of the past—so much better, that I can honestly say that the Micro RS4 is as easy to drive as a stock ⅛-scale electric touring car. Plus, it just looks cool—body on or off—and there's so much aftermarket support to mac-out the micro ride; it's incredible. I'm a racer who has to have performance and high-tech gear, so the HPI Micro RS4 definitely fits my criteria and is the car for me.

Future micros

HOBBICO MicroSizers

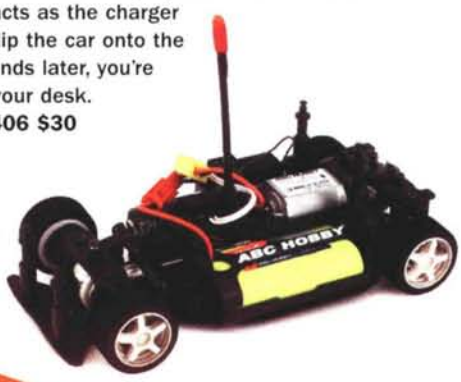
Hobbico has entered the realm of ultra-micro RC cars with its MicroSizers. These cars fit in the palm of your hand; they measure 60mm, can be charged in 45 seconds and can run for approximately 2 minutes. The transmitter works on two AA batteries, has a wind-up whip antenna and features forward, reverse, right and left non-proportional controls. The transmitter also acts as the charger for the car; just clip the car onto the side, and 45 seconds later, you're ready to tear up your desk.

Item no. HCAC0406 $30

ABC HOBBY DTM X4

Look for a new micro car from ABC Hobby this summer. A 4WD version of its Pocket Racer DTM SP, the new Pocket Racer DTM X4 will feature shaft-drive 4WD, front and rear ball diffs and an adjustable wheelbase.

Item no. ABC62600 $134



SPEEDMIND Deluxe Mini-Z Bag

Speedmind puts out a great little carryall bag to tote around and protect your Kyosho Mini-Z. The preformed interior holds the car, a transmitter, a spare motor, wheels and other accessories. The bags are made out of a black, high-quality synthetic material with your choice of trim colors: blue, purple, red, and yellow. Speedmind also makes a bag for the HPI Micro RS4 (not pictured), but because it's a bigger car, the bag can't hold the transmitter. This bag is available with either blue or yellow trim.

SPEEDMIND
Deluxe Mini-Z Bag—item no. GW026B, GW026P, GW026R, GW026Y; $31.30.
Deluxe Micro RS4 Bag—GW040B, GW040Y; $31.30.

COMING SOON

RADIO CONTROL **MINIS & MICROS**

If we've piqued your interest in these pint-size performers and left you hungry for more, keep an eye out for our special issue dedicated to miniature RC coming this fall! ■

SOURCE GUIDE

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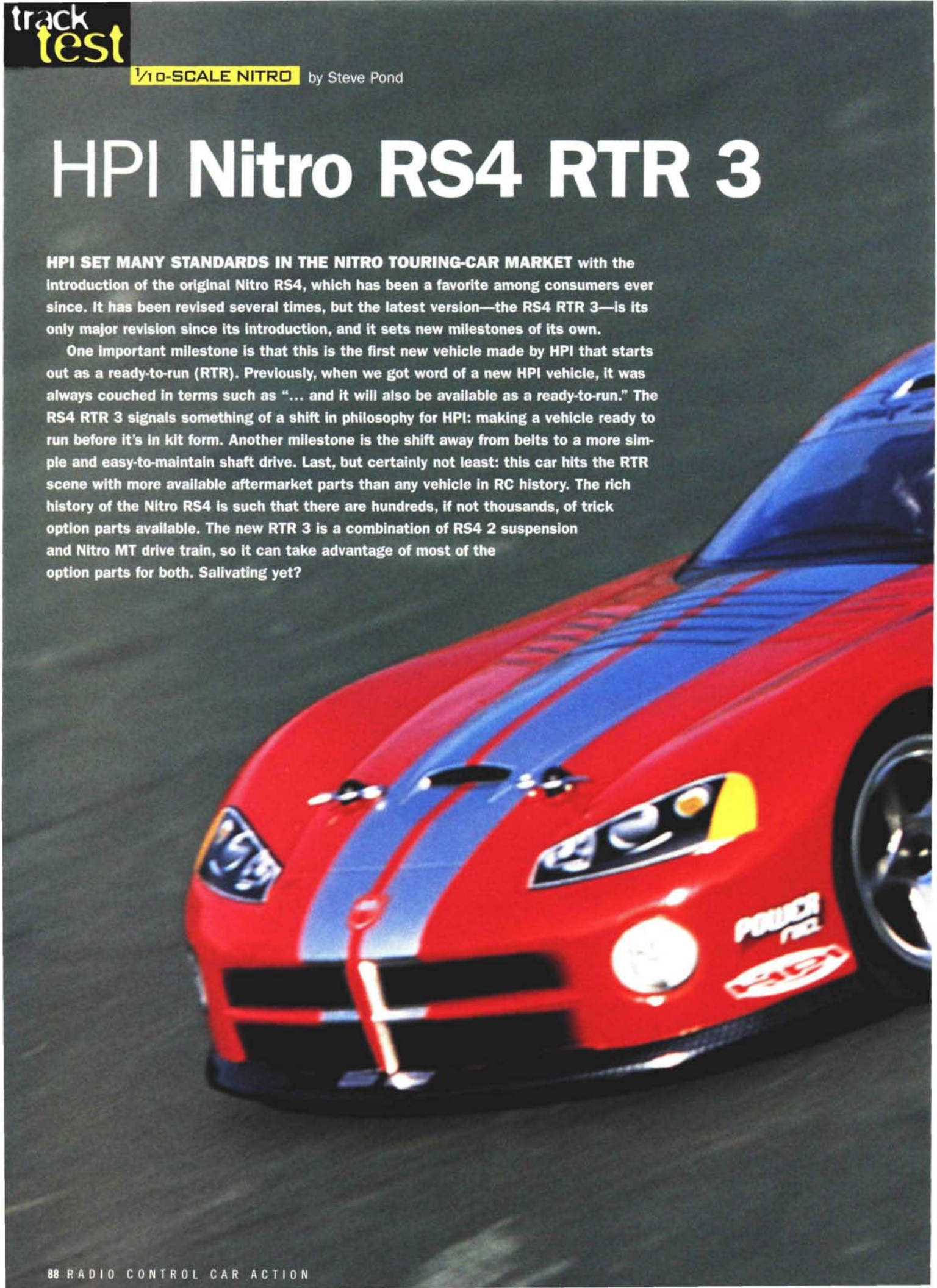
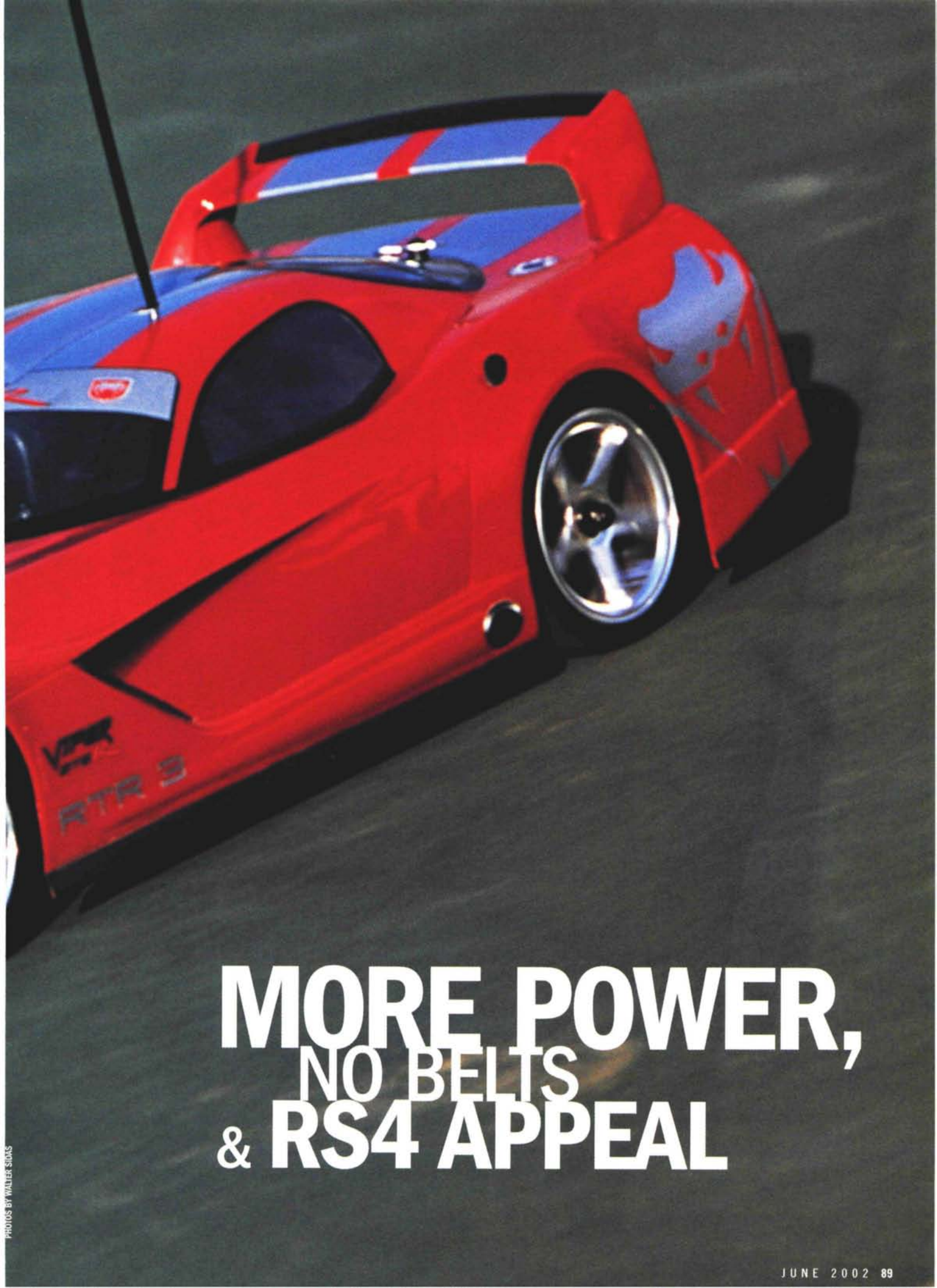
1/10-SCALE NITRO by Steve Pond

HPI Nitro RS4 RTR 3

HPI SET MANY STANDARDS IN THE NITRO TOURING-CAR MARKET with the introduction of the original Nitro RS4, which has been a favorite among consumers ever since. It has been revised several times, but the latest version—the RS4 RTR 3—is its only major revision since its introduction, and it sets new milestones of its own.

One important milestone is that this is the first new vehicle made by HPI that starts out as a ready-to-run (RTR). Previously, when we got word of a new HPI vehicle, it was always couched in terms such as "... and it will also be available as a ready-to-run." The RS4 RTR 3 signals something of a shift in philosophy for HPI: making a vehicle ready to run before it's in kit form. Another milestone is the shift away from belts to a more simple and easy-to-maintain shaft drive. Last, but certainly not least: this car hits the RTR scene with more available aftermarket parts than any vehicle in RC history. The rich history of the Nitro RS4 is such that there are hundreds, if not thousands, of trick option parts available. The new RTR 3 is a combination of RS4 2 suspension and Nitro MT drive train, so it can take advantage of most of the option parts for both. Salivating yet?





MORE POWER, NO BELTS & RS4 APPEAL

PHOTOS BY WALTER SIOAS

Removal of the radio gear for cleaning and maintenance is simplified by the clever design of the radio tray. You only have to remove three clips and separate the linkage rods from the servo horn. It takes less than a minute.

DATA CENTER

VEHICLE TYPE 1/10-scale 4WD .15-powered touring car
BEST BUYER All nitro enthusiasts, particularly those who like to customize and those who don't like to build
KIT RATINGS (poor, satisfactory, good, very good, excellent)
Instructions Excellent
Parts fit and finish Very good
Durability Very good
Overall performance Good

SPECIFICATIONS

MODEL RS4 RTR 3
MANUFACTURER HPI Racing
DISTRIBUTED BY HPI USA

SCALE 1/10
STREET PRICE $290

DIMENSIONS
Wheelbase 10.04 in. (255mm)
Width 7.87 in. (200mm)

WEIGHT
Total, as tested 62.88 oz. (1,783g)

CHASSIS
Type Channeled plate
Material 2.5mm purple-anodized aluminum

DRIVE TRAIN
Type 4WD shaft-driven, two diffs
Primary Clutch bell (18T)/spur gear (47T)
Transmission ratio 2.92:1
Final drive ratio 7.63:1
Drive shafts Dogbones
Differentials 4-gear bevel, sealed
Bearing type Metal/rubber-sealed (combination of both)

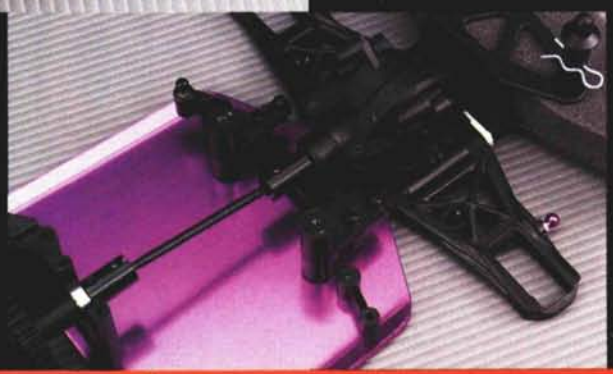
SUSPENSION
Type Lower arms with molded upper links
Shocks Molded, oil-damped

WHEELS
Type HPI Split 6 one-piece nylon

TIRES
Type HPI D compound X-pattern

Left: the rear suspension will look familiar to HPI faithful. It's similar to the suspension used on the RS4 2. The .15 FE engine has been upgraded in the RTR 3 to include a radial heat-sink head, numerous new cooling fins on the block and a one-piece exhaust header.

Right: stripped down to the bare essentials, the drive train of the RTR 3 is simple and durable. The bellcrank steering is supported with plastic bushings and a molded idler arm.



THE ENTIRE RADIO TRAY IS HELD IN PLACE WITH THREE BODY CLIPS. THIS MAKES REMOVAL QUICK AND EASY WHEN IT'S TIME TO CLEAN THE CAR.

KIT FEATURES

CHASSIS. The foundation of the chassis is a sharp-looking, deep-purple anodized 2.5mm aluminum plate. It has countersunk screw holes, so nothing hangs below the chassis and scrapes the ground; the chassis plate may certainly be the first to hit terra firma on occasion, but not the screw heads. There's also a set of recessed screw holes for optional engine mounts, in case anyone wants to install a more potent aftermarket powerplant.

The upper half of the chassis consists of a unique radio plate. It houses all of the radio gear: servos, receiver and the receiver battery pack (in the case of the RTR, the battery pack is a 4-cell AA-size holder that must be filled with batteries). Here's the interesting part: the entire radio tray is held in place with three body clips. This makes removal quick and easy when it's time to clean the car.

DRIVE TRAIN. Shaft drive is a first for an HPI touring car, but it's a proven system that has been used in HPI's Super Nitro Rally and the Nitro MT. It's a design that has stood the test of time in other, more demanding, applications, so we have every reason to believe it will hold up well here. The center shafts and drive shafts for the wheels are all of the dogbone variety.

The drive system starts out as a single speed, which is a slight handicap in today's world of 2-speed RTRs, but it's a choice HPI says it makes for simplicity's sake. A 2-speed is available as an option. A single molded disc brake is installed on the rear of the same center shaft as the spur gear is mounted on.

Four-gear, grease-filled differentials are installed front and rear. The front diff is advertised as a "limited-slip differential." A spring installed between the two spider gears within the differential presses the gears against the diff housing, and this limits the diff action, or "slip." This makes steering response more user-friendly for newcomers. It also has the added benefit of better acceleration and on-power steering in the sweepers.

The gear differentials are filled with grease and feature metal ring and pinion gears.

SUSPENSION AND STEERING. The suspension is the same as the RS4 2's. It features a lower A-arm/upper-link configuration damped by molded coil-over shocks. The beauty of this design is that most of the aftermarket parts made for the previous generation of Nitro RS4 cars will fit this one. All of the upper links are molded, so there's no adjustment.

The shocks damping the suspension are standard HPI molded units, but they include nicely anodized-aluminum shock caps and ball studs to attach the shocks to the towers and suspension arms. Black progressive-rate springs are used on the shocks, which are filled with shock oil of unspecified weight.

The RS4 3 uses the bellcrank steering assembly from the MT. The bellcranks have plastic bushings installed, but they're conveniently sized so that 5x8mm bearings can be dropped into place for those who want the smoothest steering. The steering links, like the upper-camber links, are molded.

ENGINE AND ACCESSORIES. The standard HPI .15 FE engine and exhaust system are upgraded in the new Nitro RS4 3. Gone are the standard heat-sink head with vertical fins and the restrictive two-piece exhaust manifold and muffler. The new .15 FE sports a bright purple-anodized head with more conventional, horizontal cooling fins. The engine block also has additional cooling fins all over the place. The exhaust manifold, originally from the Nitro MT, is a cast one-piece unit. Additionally, the restrictive muffler used on the RS4 2 has been replaced with a molded composite two-chamber tuned pipe for improved

Old vs. New vs. Modified

The new RTR 3 is a solid performer, but it lacks a 2-speed tranny to give it extra range in acceleration and top speed. Its single-needle carb limits the range of the engine for more accomplished engine tuners. I decided to test the car in its stock configuration and to compare it with the RS4 2 to illustrate the differences in performance between the old and the new. Then I tested the RTR 3 after installing a 2-needle carb and 2-speed tranny.

INCLUDED ELECTRONICS & ACCESSORIES

HPI TX-2 27MHz transmitter and receiver

The HPI TX-2 radio system is similar to the Sanwa/Airtronics Blazer Sport radio. It's a basic system in terms of features, but it has enough to cover the needs of the car. Most important, it's a good-quality system with very respectable range. A touring car is the least demanding nitro application, so there's little need for more radio, but a system with independent endpoint adjustments and servo-reversing would add a little more flexibility.

HPI SX-1 servos

A pair of HPI SX-1 servos controls the RTR 3. They're similar to the Sanwa/Airtronics 94102 servos, with 50 oz.-in. of torque and a .22 transit time. Again, steering a nitro touring car is not that demanding on the radio and servos, and these servos have enough torque to get the job done. The brake is strong and sensitive, so it doesn't take much servo effort to activate the binders, either.

HPI 2003 Viper GTS-R body

A body wouldn't normally rate the accessories section because most RTRs come with a body, and many others come painted. But HPI's bodies are becoming the standard by which others are judged. The craftsmanship is first rate, with crisp, detailed lines that produce very scale-looking bodies. They are also molded with a protective film to protect against overspray. Precut window masks allow clear windows instead of the blacked-out windows that are typical of most painted RTR bodies. Last, the decals come cut; this is the most labor-intensive part of detailing a body. The RS4 RTR 3 may not come with a painted body, but it surely has the easiest to detail.

YOU'LL NEED

- 12 AA batteries (8 for the transmitter, 4 for the receiver)
- Glow igniter
- 20-percent-nitro fuel
- Paint
- CA for tires

FACTORY OPTIONS

- 2-speed transmission—Item no. 86038
- 5.5mm 2-needle carb—1634
- Threaded aluminum shocks—72170
- 3mm 7075 aluminum Super Chassis—73914
- Fiber brake disc—A844
- Heat-sink engine mounts for non-PS engines—A920
- Lightweight 32mm flywheel for non-PS engines—A926
- Heat-sink engine mounts for PS engines—A915
- Lightweight 40mm flywheel for PS engines—A925
- Nitro racing clutch—A885

**Partial list; many additional alloy and custom suspension parts available from BuyHPI.com.*

exhaust flow and reduced engine temperatures.

The engine still includes a single-needle carb, which is intended to make tuning a little easier for the average RTR buyer. I agree that a single needle is easier to adjust, but it also makes it slightly more difficult to keep the engine running. This is because when the carb is adjusted properly for all-around performance, the engine runs a little too rich at idle; it can't sit still for long, or it may stall. Fortunately, HPI offers a Stage 1 upgrade kit—a 2-needle carb with a 5.5mm bore. This allows the engine to breathe a little better as a result of the nearly 1mm larger bore, and it's easier to meter fuel at idle and keep the proper high-speed mixture setting.

BODY, WHEELS AND TIRES. At press time, the RS4 3 is available with a Chevy Camaro, Dodge Stratus, Viper GTS-R and low-slung Ford F-150 street body. I chose the kit with the Viper body, but it isn't as practical as the Camaro, F-150, or Stratus. The Viper's long nose means that the fuel-tank opening falls partly under the hood and the windshield. This means you need to cut an unsightly hole partway through the hood to facilitate quick refueling, or you must refuel by partially (or entirely) removing the body.

The car comes standard with HPI's new Split 6 wheels molded in charcoal-colored high-impact nylon. They're certainly very sharp-looking wheels, and I'm hanging on to them for later use, but I couldn't resist the more Viper-like appeal of the no. 3692 chrome Super Star wheels. The wheels are fitted with the same D-compound X-Pattern tires as are included in the kit.

PERFORMANCE

I hunted down a tennis court and an open, freshly paved parking lot to test the RS4 RTR 3. This is the most typical stomping ground for the average RTR buyer, so that's where I chose to do most of my testing.

The revamped .15 FE engine retains a single-needle carb. This carb causes some hesitation when you accelerate because the engine needs to clear excess fuel that builds up while idling. Once you start bombing around the lot, the engine doesn't get a chance to load up, so throttle response becomes more crisp.

YOU CAN ALSO GO POSTAL WITH THIS THING AND MAKE IT A SUPER CUSTOM MACHINE

The final drive ratio of the RTR 3 is slightly greater than that of the previous generation, which means that the RTR 3 should accelerate more quickly, but it shouldn't be as fast on the top end. But the new header and tuned pipe let the engine breathe a little better. This allows the engine to rev higher and to actually eclipse the top speed of the RS4 2 by a few miles per hour (see the "Old vs. New vs. Modified" sidebar graph for performance comparisons). Its gearing gives the RTR 3 good tire-spinning punch off the line and reasonable top speeds, but the engine seems to reach peak rpm almost too easily, and it stays there for a long time before it reaches the other end. Gearing is a matter of preference and environment, of course, so I'm not saying it's geared incorrectly; I just think it would better suit the average parking-lot racer if HPI had gone up a couple of teeth on the clutch bell.

LIKES
- Excellent instructions.
- Very user-friendly design.
- Tremendous availability of option parts.

Steering and suspension response feel very well-balanced. I expected fairly numb steering response as a result of the "limited slip" front diff; instead I found the car rather responsive. I suggest slightly heavier shock oil for bumpy surfaces, but the damping felt pretty good for average parking-lot conditions. My only caveat concerns running the car in cold weather: I found the stock shock oil very susceptible to changes in temperature; cold turns it into pudding, and the shocks barely compress. This became apparent during a late-night break-in run when the temperature dropped into the 40s. If you're bent on having consistent suspension action, a simple solution is to replace the stock shock oil with pure silicone oil.

The tires are a home run. They're soft enough to get good grip in the less than ideal conditions of dusty streets and parking lots, but not so soft that they'll wear out too quickly.

DISLIKES
- Not exactly RTR.
- Single-needle carb.
- Stock gearing too low.

THE VERDICT

If you're looking for a car with the longest checklist of gee-whiz features included in the kit, the new HPI RTR 3 may appear to come up short. Other cars are equipped with 2-speeds, turnbuckles and a few other items that look good on the "included" list. The appeal of the RTR 3 is different. I like the RTR 3 even more for what it *can be* than for what it is. It can be just about anything you want. You can stick with the stock machine and have tons of fun without investing in more than fuel and batteries, but you could also go postal with this thing and make it a super custom machine. This car already enjoys massive aftermarket support with more combinations of alloy, anodizing and other various parts than you can imagine. With the aid of our aftermarket friends, installation of even the most potent .21 engine is a bolt-in affair.

HPI already offers a 2-speed as well as a host of other custom parts, and the suspension and drive train can be modified to your wallet's limit—not that it *needs* such aftermarket attention; the RTR 3 comes with HPI's stamp of quality and value. HPI's cars have a reputation of holding together well, and even when you manage to break something, it's easy to find a hobby shop to supply a new part. The new shaft-drive system is a very solid move toward an even more durable car. No more belts or pulleys damaged by pebbles that can stop the car dead in its tracks—or worse. The car also has a brilliantly designed radio plate that is easily removed for cleaning. It all adds up to what should be the most maintenance-free, trouble-free RTR touring car on the market. ■

SOURCE GUIDE

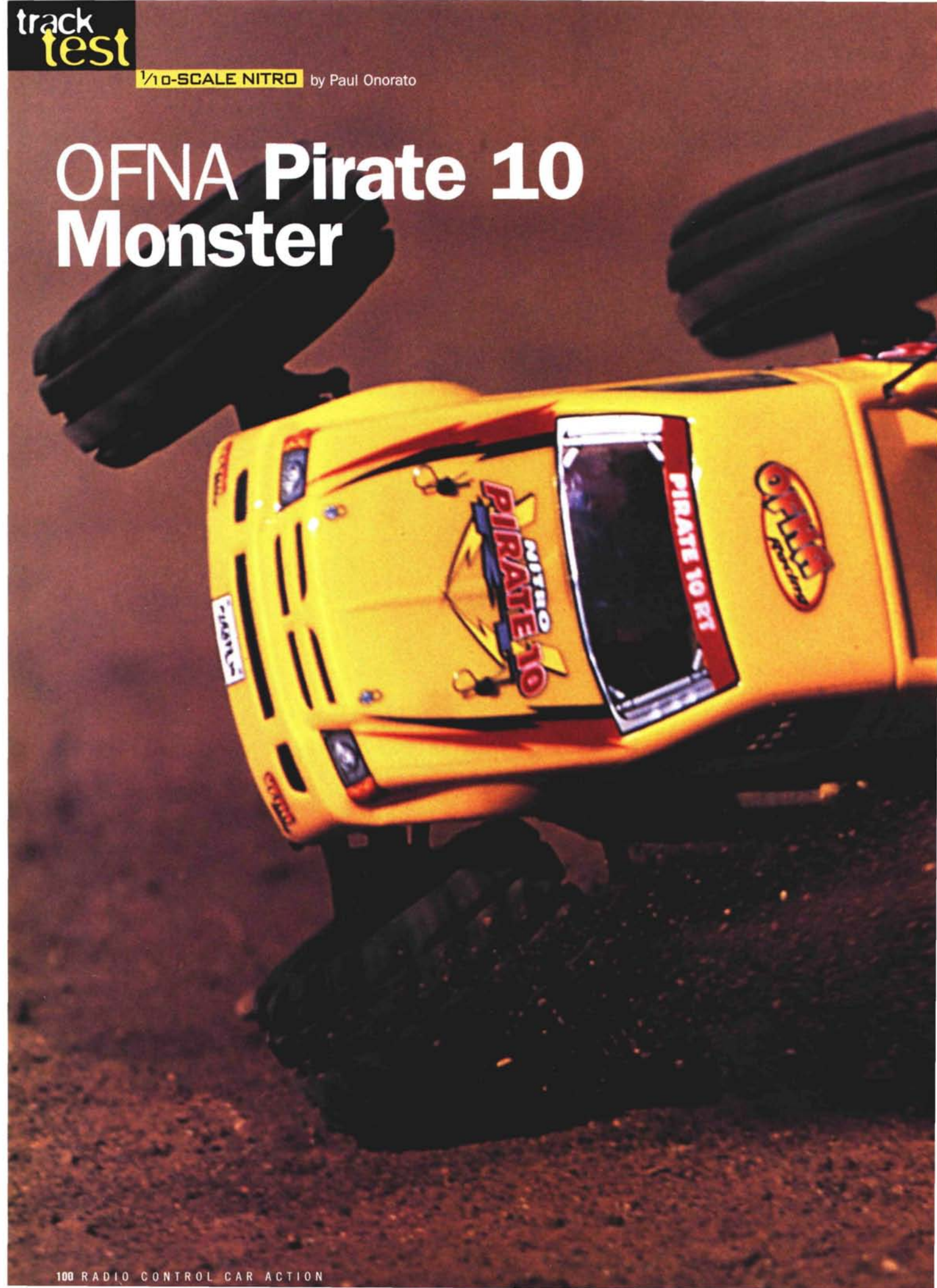
HPI RACING (949) 753-1099; www.hpiracing.com; www.BuyHPI.com.

THE COMPETITION

Model	Drive train	Chassis	Ball bearings	Drive axles	Transmission	Radio	Street price	Reviewed
DuraTrax Street Force GP RTR	Belt drive	2.5mm aluminum	Metal shielded	Dogbones	2-speed	Hitec Lynx	$309	9/00
HPI Nitro RS4 RTR 3	**Shaft**	**2.5mm aluminum**	**Rubber sealed**	**Dogbones**	**Single-speed**	**Airtronics Blazer**	**$299**	**6/02**
Megatech Razor XT	Shaft drive	2mm aluminum	Metal shielded	Dogbones	2-speed	Hitec Lynx	$339	12/01
Mugen MSX-3 RTP	Shaft drive	3mm aluminum	Metal shielded	Dogbones	Single-speed	Hitec Lynx	$289	2/02
OFNA Nitro Z10 RTR	Belt drive	2mm aluminum	Rubber sealed	Universals/dogbones	2-speed	Airtronics Blazer Sport	$299	TC 2001
Traxxas Nitro 4-Tec RTR	Belt drive	2mm aluminum	Metal shielded	Telescoping universal	2-speed	Traxxas Top Qualifier	$309	4/99

1/10-SCALE NITRO by Paul Onorato

OFNA Pirate 10 Monster



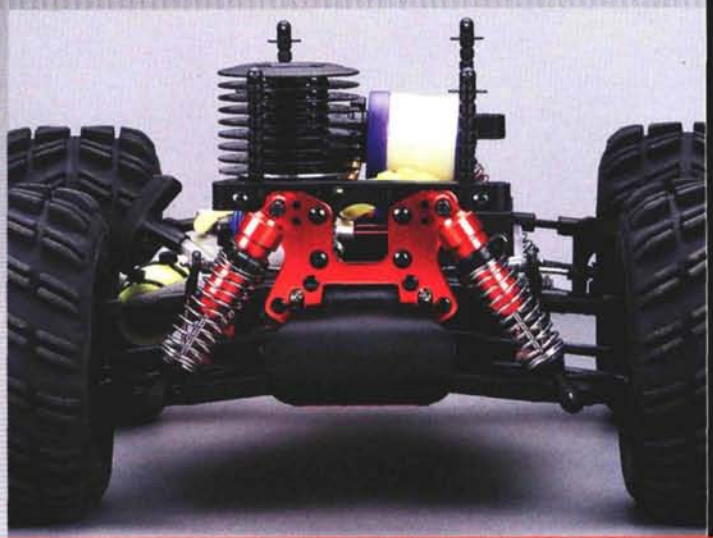
Furious Flatbed

IF YOU'RE THE TYPE OF GUY WHO JUST CAN'T GET ENOUGH power and speed, this just might be the truck that can satisfy you. The Pirate 10 Monster RTR is a ⅒-scale 4WD machine that would be perfectly matched to .15 power, but OFNA went for the heavy artillery and shoehorned a Hyper .21 under the Pirate's stadium-truck shell. Along with the big-block engine, a lot of great features are packed into this truck: aluminum shocks, ball bearings and lots of red-anodized stuff; OFNA even put the whole thing together for you! This bad boy is ready to run with an Airtronics Blazer Sport radio system, a painted body, glued tires, an included quart of fuel and a glow-starter. Let's run this thing!

You can see the wide plastic spur gear just ahead of the air filter. The gear held up well.

The P10M's low-profile tank is cleverly squeezed onto the chassis. Note the spill-guard.

Below left: nothing out of the ordinary here; long H-arms with an adjustable upper wishbone, thick steering rods and big aluminum coil-over shocks make up the suspension. Below right: the big tires give the P10M an aggressive look. The rear swaybar is just visible above the shock springs.



DATA CENTER

VEHICLE TYPE 1/10-scale, 4WD, .21-powered, RTR nitro monster truck

BEST BUYER Any nitro enthusiast

KIT RATINGS (poor, satisfactory, good, very good, excellent)
Instructions Satisfactory
Parts fit and finish Very good
Durability Very good
Overall performance Good (or Excellent, if speed and power are what you care about most)

SPECIFICATIONS

MANUFACTURER OFNA
MODEL Pirate 10 Monster RTR
SCALE 1/10
STREET PRICE $350*

DIMENSIONS
Wheelbase 10.9 in. (278 mm)
Width 13.78 in. (350mm)

WEIGHT
Total, as tested 85 oz. (2,409g)

CHASSIS
Type Stamped semi-tub with upper deck
Material Red-anodized aluminum

DRIVE TRAIN
Type Full-time 4WD, shaft
Primary Clutch bell 15T/spur gear 42T
Transmission ratio 3.3:1
Final drive ratio 9.24:1
Drive shafts (F/R) CVA universals/dogbones
Differentials Planetary gear
Bearing type Metal-shielded ball bearings

SUSPENSION
Type Lower H-arm with adjustable upper A-arm
Shocks Aluminum-body, coil-over, oil-filled

WHEELS
Type Split five-spoke, one-piece gray plastic

TIRES
Type Ho Bao chevron lug tread

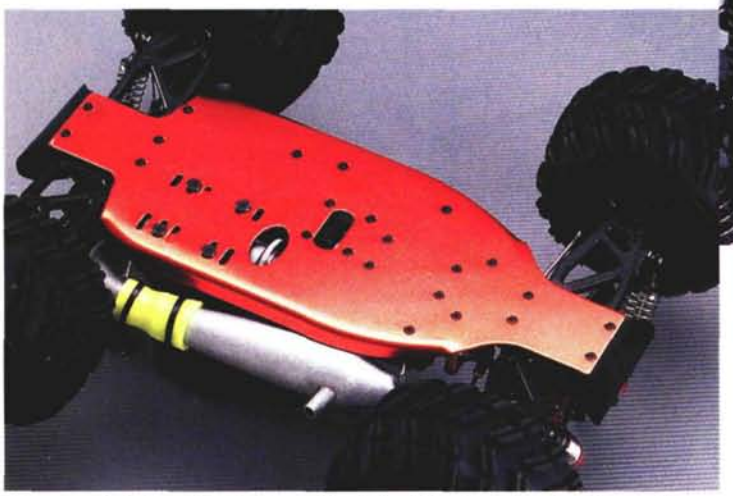
ENGINE AND ACCESSORIES
Engine OFNA Hyper .21
Starter Pull-starter
Carburetor 2-needle slide, composite
Cylinder head 8-fin black-anodized aluminum
Pipe OFNA aluminum tuned pipe
Fuel capacity 95cc

**Price varies with dealer*

OFNA'S HYPER .21 ENGINE IS CLEARLY THE STAR OF THE PIRATE 10.

KIT FEATURES

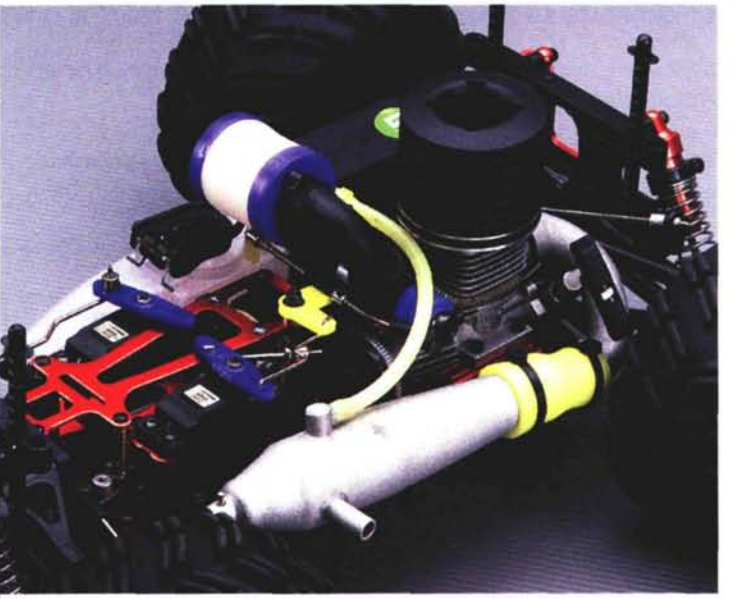
CHASSIS. The Pirate 10 Monster (P10M) uses a red-anodized aluminum plate as the backbone of its chassis. It measures 2mm thick, and the sides of the plate curve upward to help minimize flex. A 2mm upper deck between the front gearbox and center diff mount lends additional strength, and a plastic brace joins the center diff mount to the rear gearbox. With the exception of the engine-mounting hardware, all of the screws are countersunk on the underside of the chassis plate. A plastic box on the right rear of the chassis protects the receiver and battery pack, and the steering and throttle servos rest on an aluminum platform between the upper and lower decks.



The curved sides of the bottom plate help stiffen the chassis. An opening under the flywheel makes room for an optional starter box, and the opening under the spur gear allows rocks to be ejected without causing any harm.

DRIVE TRAIN. An 1/8-scale buggy-style, shaft-driven, triple-differential drive train spins all four of the P10M's tires. Each of the three diffs has aluminum housing and planetary internal gears, and the front and rear units have spiral-cut ring gears. A thick, plastic spur gear and a single fiber-disc brake rest on the center diff, and plastic shafts transfer power to the gearboxes. I was surprised that OFNA spec'd plastic for the shafts instead of steel; a day of running will reveal whether this is a weak link in the drive train.

The gearboxes reach out to the hubs via steel CVA universal-joint axles in the front and through steel dogbones in the rear. Metal-shielded ball bearings are spec'd throughout the drive train; thus, everything spins true and free.



The big Hyper .21 dwarfs the 1/10-scale chassis and so does the exhaust noise coming from the monster pipe. This truck draws attention!

To stop the P10M, a pair of steel calipers clamps the fiber-disc brake. Front and rear brake bias isn't adjustable, but the single rotor setup provides four-wheel braking.

SUSPENSION AND STEERING. The Monster's suspension setup is pretty standard stuff. Lower H-arms with adjustable upper wishbone camber links are at both ends of the truck, and the red-anodized-aluminum body shocks are equipped with stiff springs and filled with heavy shock oil. The shocks are mounted on matching red-anodized shock towers, and there are three upper and lower shock positions to choose from. A swaybar is incorporated into the rear end.

Heavy-duty dual bellcranks with adjustable steering tie rods handle the steering chores. A non-adjustable servo-saver is on the left bellcrank, and a piano-wire drag link connects the two bellcranks.

ENGINE AND ACCESSORIES. OFNA's Hyper .21 engine is clearly the star of the Pirate 10. It features true ABC piston-and-sleeve construction, a pull-start, a dual-needle slide carb, a round-port exhaust and a large, black eight-fin heat-sink head. A low-profile 95cc tank with spill-guard feeds the engine, and the tank's unusual shape was designed to fit the contours of the chassis. An oiled, foam-element air filter provides clean air

INCLUDED ELECTRONICS & ACCESSORIES

YOU'LL NEED
- 12 AA alkaline batteries
- 1 C-size alkaline battery

Airtronics Blazer Sport radio system

The included Airtronics Blazer Sport radio does a fine job of keeping the P10M under control, but it's light on features. It has the basics (servo-reversing and trims, power-on LED, charging jack) but is otherwise a no-frills radio. Most other nitro RTRs include similar systems, so OFNA isn't at a competitive disadvantage, but it would be nice to see transmitters with adjustable steering and throttle end-points included with nitro RTRs (as found on the Airtronics Blazer, one model up from the Sport). On the plus side, the Sport system keeps the cost of the kit low.

Airtronics 94102 steering and throttle servos

These Airtronics standard base-line servos produce about 40 oz.-in. of torque. They are a little overmatched in steering the large monster tires when at speed, but as long as you give the Pirate plenty of room when turning, they do the job.

Megatech High Velocity racing fuel

Fuel is rarely included with nitro RTRs. The High Velocity racing fuel boasts 25-percent nitro and, according to Megatech, uses "Syntol oil blend." A great feature that gets major points for convenience is the built-in flip-up spout on the fuel bottle. No more filling a separate bottle to fill the tank; just raise the spout and pour.

OFNA glow starter

OFNA certainly did its homework and has provided all the gear you'll need to get the Pirate 10 Monster up and running—and that includes a glow starter. The main body of the igniter is made of plastic, and the stem is a metal-clamp style. Either a C-size alkaline or rechargeable batteries will light up the glow plug.

for the carb, and the exhaust is routed through a spring-mounted header with a silicone-coupled aluminum tuned pipe.

BODY, WHEELS AND TIRES. A factory-painted, stadium-style body caps the chassis and arrives with the decals already applied. OFNA also glues the foam-supported tires onto the wheels for you. The wheels and tires give the P10M an intimidating appearance, thanks to the aggressive tread pattern and the new, deep-offset split-spoke wheels.

PERFORMANCE

THE PIRATE'S AGGRESSIVE TIRES SPRAYED ROCKS AS THEY HUNTED FOR TRACTION.

Even when I ran the Pirate very rich for break-in, I could tell that the truck would be wildly fast. As the engine loosened up and the power increased, it became clear that the Pirate would need a lot of room to play at its maximum performance potential. With that in mind, I packed up my gear and headed for a local soccer field that had large parking lots, fields of short grass and steep embankments to challenge the truck.

Still warm from the break-in runs, the Hyper engine fired up easily. I slowly rolled on the throttle to see what the P10M could do. It held a straight line across the field with seemingly endless acceleration and wild tire growth; by the time the P10M reached its top speed, the front wheels had turned into pizza cutters! Aggressive launches caused the P10M to squat hard and dig in as the front tires expanded almost instantaneously because of the centrifugal force acting on them. I knew from *Radio Control Nitro*'s experience with the P10M (March 2002) that locking the center differential by reversing a sun gear prevented the uneven tire growth, so I made the same mod on my test truck. When all four wheels received equal power, the Monster squatted less and was easier to control. On grass, it wheelied easily; in the dirt, its aggressive tires sprayed rocks as they hunted for traction.

LIKES
- Excessive power.
- Full ball bearings.
- A blast to drive.

As a straight-line machine, the P10M was easy to handle, but when the going got twisty, it became a handful; even with the new, wide-offset wheels, the P10M package represents a lot of horsepower in a little truck. The combination of a high center of gravity (because of the tall Hyper engine), a relatively narrow track (compared to 1/8-scale machines designed for .21 power) and a short-travel suspension makes this truck easy to roll over. The truck's high speed is a factor, too; be prepared to scrub a lot of speed for all but the most sweeping turns.

Although effective for modulating speed, the P10M's brake could use more brute stopping force. I adjusted the brake linkage so that the disc brake got more clamping power. This helped, but a single-disc brake can give only so much grab; give the truck plenty of slow-down room!

Jumping was next on my list, and I lined up the Monster with a portable skateboard launch ramp. With its large tires and over-the-top horsepower, the P10M proved very sensitive to midair throttle. Practicing a midair balancing act was a total blast as I flew the Pirate through the air one jump after another. Landings were smooth if the flight was level, but anything less tended to send the truck into the longest string of cartwheels you'll ever see outside of a gymnastics camp.

I wrapped up my test with a run at the radar gun, and the best pass was 48.9mph on the included 25-percent nitro fuel. With a little more nitro or another tooth on the endbell, the P10M could easily pass the 50mph mark, but I don't think anyone will really need this truck to go any faster!

DISLIKES
- Center diff unloads to the front end very easily.

THE VERDICT

Without a doubt, the Pirate 10 Monster lived up to my expectations of a 1/10-scale monster truck with an overdose of horsepower. The chassis handles the power well from a durability standpoint, but if your goal is track-taming handling, the Hyper .21 is just too much engine for a 1/10-scale truck. But that type of action isn't the P10M's mission; this truck is all about wheelies, donuts, hurling roost and the humiliation of every other RC machine in the neighborhood by virtue of sheer power. And don't forget: it's RTR! ■

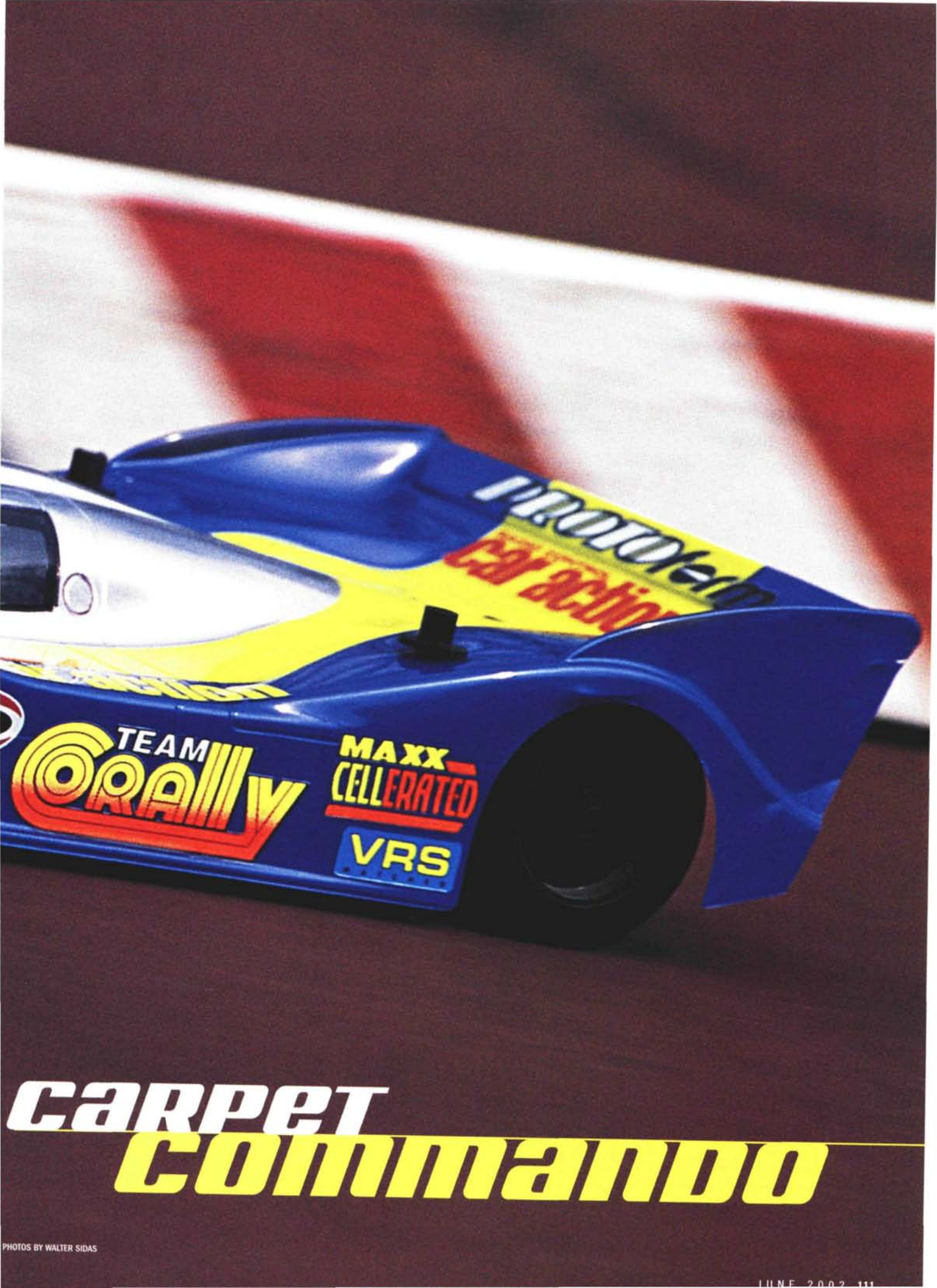
SOURCE GUIDE

AIRTRONICS (714) 978-1895; airtronics.net.
MEGATECH INTL. (201) 662-8500; megatech.com.
OFNA RACING (949) 586-2910; ofna.com.

1/12-SCALE ELECTRIC by Peter Vieira

Corally SP12M Graphite

CORALLY HAS A KILLER ELECTRIC SEDAN (the C4.1), a trick F1 car (simply called "F1"), a 1/10-scale on-road chassis (C-10X) and a direct-drive tourer (CCT); all are good cars, but what Corally is best known for is its 1/12-scale competition cars. The latest is the SP12M, which combines trademark Corally features, such as a tubular rear-axle housing and silicone-filled rear damper "bag," with an all-new wishbone-type front end that increases the car's tunability. The SP12M is offered in a fiberglass-chassis model as well as a full-graphite kit; I can guess which one you'd like to own, and that's the one I tested (the graphite model, obviously).



carpet commando

PHOTOS BY WALTER SIDAS

Below left: the SP12M's diff is unique. O-rings grip the diff rings, and look at the size of that thrust bearing! The axle is graphite from tip to tip, including the threads. Below right: the aluminum axle tube is epoxied into the aluminum pod plates. Combine those parts with the graphite lower pod plate, and the result is a rock-solid rear end.

The large-diameter aluminum front axles spin on bearings in the steering knuckles. Note the adjustable spring perch.

DATA CENTER

VEHICLE TYPE 1/12-scale, 2WD competition pan car

BEST BUYER Electric-racing RC enthusiast

KIT RATINGS (poor, satisfactory, good, very good, excellent)
Instructions Satisfactory
Parts fit and finish Very good
Durability Very good
Overall performance Very good

SPECIFICATIONS

MODEL SP12M Graphite
MANUFACTURER Corally
DISTRIBUTED BY Corally USA
SCALE 1/12
PRICE $130

DIMENSIONS
Wheelbase 7.8 in. (198mm)
Width (F/R) 6.4/6.6 in. (163/167mm)

WEIGHT
Total, as tested 24.6 oz. (697g)

CHASSIS
Type Plate
Material Graphite

DRIVE TRAIN
Type Direct drive
Primary Pinion/spur gear
Drive axle Graphite
Differential Ball
Bearing type Metal-shielded ball bearing

SUSPENSION
Type (F/R) Independent wishbone/T-plate
Damping (F/R) Friction/fluid damper

WHEELS
Corally one-piece plastic

TIRES (F/R)
Corally silver-compound foam/Gold-compound foam

THE SP12M IS FULLY ASSEMBLED IN THE BOX, SO ALL YOU HAVE TO DO IS INSTALL YOUR GEAR.

KIT FEATURES

CHASSIS. The full-graphite version of the SP12M is shown, and all of its plate components are well finished; the edges are splinter free, and the chassis' radiused corners flow smoothly into the straight sides. There are slots for four cells (two on each side of the T-plate), and Corally includes its trademark battery trays to insulate the cells from the graphite and keep them secure in the chassis. A graphite strap presses the cells into their holders, and it is locked into place by plastic clips that snap over aluminum standoffs that hold the strap.

A wide brace resists torsional flexing and serves as a mount for the rear damper post, and short bars of graphite bridge the T-bar slot. The T-bar itself is suspended from the bars by Corally's unique pivot-ball system. Each aluminum pivot ball is enclosed by a two-piece plastic retainer that snaps around the ball, clamshell-style. The retainer slides into a precisely fitted hole in the graphite bar, which holds the retainer closed around the ball. To keep the retainer secured in the bar, a thick O-ring is stretched around a flange on the top of the retainer.

DRIVE TRAIN. Like all pan cars, the SP12M is a direct-drive machine; pinion meshes with spur gear, spur gear is attached to a straight axle. Despite this inherent simplicity, Corally has found room for many unique features. Most notable is the ball differential, which is identical to other pan-car diff designs in its basic configuration but very unique in its details. A knurled thumbwheel is easily adjusted by hand to tighten or loosen the diff or is easily removed for disassembly. A single Belleville washer under the thumbwheel squeezes the thrust bearing, which is huge; the ball retainer measures 20mm in diameter and encloses eight 3mm balls. Equally large thrust washers sandwich the thrust bearing, which fits against a large flange that is keyed to Corally's unique wheels (standard 1/12 wheels don't fit). The back of the flange presses against the outboard diff ring but doesn't touch it directly; instead, an O-ring pressed into the wheel flange grips the ring, so it won't spin under load, and it pads the ring for extra-smooth diff action. Likewise, the inboard diff ring is supported by an O-ring in the axle's pressed-on aluminum diff flange. The axle itself is graphite from tip to tip, including the threaded portion that engages the adjusting thumbwheel. Trick stuff.

There's innovation in the rear pod, too. Aluminum side plates are used (nothing new there), but Corally's axle-tube design is very clever. Instead of pressing the axle bearings into the side plates, Corally presses a flat oval-shaped aluminum tube into the pod plates and epoxies it into place. The tube lends considerable stiffness and holds the pod plates square. The axle bearings are pressed into caps that fit over the axle tube. The caps hold the bearings offset, and that allows ride height to be adjusted by inverting the cap. The assembly is bolted to a one-piece T-plate/lower pod plate, with additional support from a graphite brace that wraps around the front of the pod plate.

A standard, 81-tooth, 48-pitch Du-Mor spur gear is included; if you prefer a different tooth count (or 64 pitch), you can use any standard spur gear. A pinion is not supplied, and you might want to consider going for a full set of new Corally pinions instead of reaching for your current set, as the SP12M places the spur gear far from the motor plate. Standard pinions barely touch the gear before reaching the end of the motor's output shaft, while Corally pinions have an extra-long shank for more reach.

SUSPENSION AND STEERING. Corally pan cars are well known for their convention-shunning suspensions, with most of the attention going to the rear damper. In concept, the disc-type damper is not unlike those found on Associated's original RC10/12L series (pre-triple shocks), but instead of using exposed discs and grease, the Corally damper is enclosed in a soft-rubber gaiter, and silicone "syrup" is used to lubricate the discs and provide damping. Unlike grease, which does not flow back under the discs once displaced, Corally's bag-of-goo technology provides very consistent damping action that can be easily tuned by varying the viscosity of the damper syrup.

In addition to damping rate changes, the SP12M's tweak can be adjusted via a pair of tweak screws on each side of the forward T-plate pivot. The screws thread into plastic inserts, which will hold their threads longer than self-tapped holes threaded directly into graphite.

The SP12M's front end is also an unusual (but effective) design. Instead of molded suspension members, the front-end parts are cut from graphite plate. Each front wheel has its own separate wishbone that pivots on a pair of balls the same type as used for the T-plate. Washers under the forward balls tilt the wishbone arms back to provide caster, and the location of the pivots causes the wheels to gain camber and reduce caster as the suspension is compressed. A graphite bar connects the two arms and acts like a swaybar (you might even call it a "sway-plate"); as one side of the suspension is compressed, the bar transfers some of the compression force to the opposite arm. A single screw in each arm secures the plate, and two locations for the screw are provided to adjust its "stiffness." Optional plates are also available in "soft" and "medium" versions; the graphite unit included with the kit is the stiffest ("hard"). A third hole in each arm can be used to adjust front-end tweak. Coil springs over each arm provide bump absorption, and a threaded spring retainer can be cranked up or down to adjust preload.

The steering system is quietly innovative. Wire linkages formed into loops connect to the servo-saver (which is not included) via a single screw, so both linkages pivot from the same point. The wire linkages are equipped with ball cups that snap over the ball ends on the steering arms

BUILDING & SETUP TIPS

The SP12M, like all Corally cars, is fully assembled in the box, so all you have to do is install your gear, paint up a body, and hit the carpet. The included manual is heavy on text and setup tips but has no illustrations to guide you through reassembly. Don't worry; it's a simple car. Here are some additional tips to help you become a wizard of Ozite.

BATTERY TRAY MOD. The SP12M includes a pair of three-slot trays, but the SP12M requires only two slots. The solution is easy: hack off one slot! But before you do, test-fit your cells. I found that Sanyo HV cells were too large for the trays, so I just dropped them directly into the slots in the chassis.

LUBE THE DIFF. Corally's factory assembly is excellent, but the diff is light on lube. I used Associated Stealth lube on the diff balls and Associated black thrust grease on the thrust bearing. I have about 50 little tubes of the stuff, so I use it whenever I can ....

BUT DON'T LUBE THE O-RINGS! When you're putting slippery stuff on the diff parts, be careful not to get grease on the O-rings that back the diff rings; the stiction of the rubber donuts is what keeps the diff rings from spinning on the axle.

PASS THE SYRUP. Don't go crazy with the damper syrup; you only need to coat the damper discs. Filling the rubber damper boot with goo isn't necessary.

FACTORY OPTIONS

- 48-pitch pinion (Corally preferred)
- 1/12-scale body
- 4-cell battery
- Motor
- ESC
- Steering servo (mini type preferred)
- Transmitter and receiver

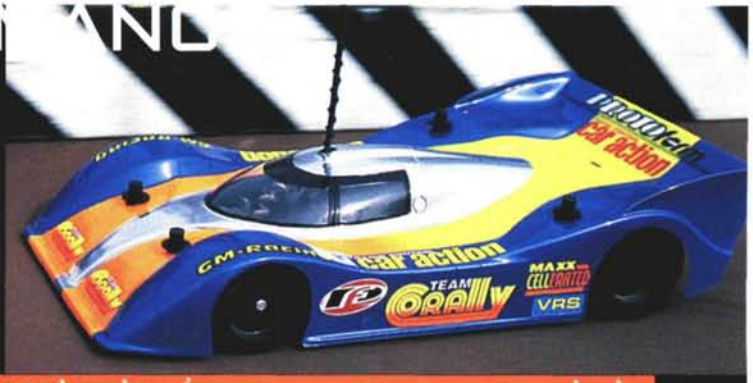
FACTORY OPTIONS

- Wishbone connector (soft)—item no. 74882
- Wishbone connector (medium)—74823
- Wishbone connector (hard), graphite—74830
- T-bar (soft)—74833
- T-bar (hard), graphite—74840
- Stick-pack mounting kit, graphite (6-cell stick)—75701
- "Soft" damper syrup—80001
- "Hard" damper syrup—80002
- "Extra-hard" damper syrup—80010

and slide up and down the linkage for toe adjustments. When you have the angles you need, aluminum collars built into the ball cups cinch down on the linkages via setscrews.

BODY, WHEELS AND TIRES. The SP12M does not include a body, but it does include mounted foam tires on the Corally-specific wheels the car requires. The front wheels fit over the aluminum front axles directly, without bearings; instead of putting the bearings in the wheels, the axle spins on bearings in the steering knuckles. The rear wheels are keyed to fit over broad flanges on the axle and have very shallow "faces." The SP12M's long rear axle reaches through the wheel to the face of the rim, where a plastic clip secures the wheel. With this design, the axle supports almost the full width of the wheel for a strong and wobble-free setup. And I can't forget the compound; instead of one-run-and-toss-'em tires, Corally supplies long-lasting, race-ready, silver-compound front tires and gold rears—that's the good stuff.

PERFORMANCE



Corally touts the SP12M as being well suited to asphalt racing, but most racers pit their 1/12-scale machines against one another on carpet. And when the action turns to Ozite, RC Madness (Enfield, CT) is the place to go. I hit the track on a practice night and kept the lap times from the previous Sunday's race in mind as a performance barometer.

THE CHASSIS DIDN'T FEEL TWEAKED AT ALL—IF IT WAS, IT WASN'T ENOUGH FOR ME TO NOTICE.

I used the first laps to sort out the steering trim and see how far off the tweak was. I adjusted the T-plate to be level with the chassis before I set the car down, but I didn't put it on a tweak board; I wanted to see how close it was straight from the bench. The chassis didn't feel tweaked at all—if it was, it wasn't enough for me to notice. I put the SP12M on my MIP Tweak Station to see how close it really was, and the bubble was just off level. I went ahead and dialed it out, but I could have left it alone and never known the difference.

I held back on those first laps because I was running dry tires, and I wanted to get a sense of how much grip each end of the car had before I started painting the tires with traction compound. When it was time to put down the power, I decided to go with a full-width coating on the rear tires, and I striped the outside halves of the fronts. When the excess compound had burned off after a half lap, the SP12M was hooked up. The SP12M dove into the corners aggressively, but it was sketchy on the straights. To compensate, I added just the slightest bit of toe-in, punched in an extra click of steering throw so my max steering settings wouldn't change and went back out. Now the SP12M felt really locked in: just point and shoot. It blasted around the boards like a mouse in a maze, and I felt I was ready to drop in a transponder and see how my skills would hold up.

LIKES

- A-main performance out of the box.
- Careful factory assembly.
- Easy-to-adjust front end.

The average 1/12 Stock A-main laps were in the mid-10s, and I made that my goal. Track owner Chris Marcy dialed up the practice program on his new AMB system, and the SP12M made me look like a pro—between crashes, at least. What is it about a transponder that makes me incapable of driving? After 5 minutes, my best lap was only 1 second off the pace. Now, I know 1 second is an eternity, but when you consider that I was running full-diameter tires and an unmassaged stock motor, it seems like a lot less time to make up. And let's not forget driving skill; my style is better described as "don't hit anything" rather than "choose the very best line." Anytime I can get within 1 second of local hero Mike Dumas's A-main laps, I'm pretty stoked.

I hung out for a couple more hours, just having fun and goofing around with the setup. It occurred to me that my board-splintering laps didn't seem to affect the car's setup; the rigid axle-tube and plate front end held their positions. And the front end is easy to adjust, especially with the dial-a-preload spring perches. I was also surprised that the wheels stayed on; I thought for sure Corally's funky plastic axle clips would pop off in a crash. It never happened. I'll close with an item that isn't important to performance but is important to me, and that's convenience. The SP12M is easy to swap packs into and out of, thanks to the graphite hold-down and quick-release clips—no tape hassles. Strapping tape is for boxes, not batteries.

DISLIKES

- Parts support varies from track to track.
- Rear axle has only two ride-height settings.
- Included battery trays are too small for "large" 3000mAh cells.

THE VERDICT

Corally's reputation as a builder of high-performance competition cars is safe: the SP12M can win anywhere, as long as you're a good enough wheel man to back up the car's capabilities. The only significant gripe I have with the car has nothing to do with its features or quality and everything to do with the track at which you choose to race. If the track owner stocks Corally parts, you're golden; if he doesn't, you had better not crash too hard (or wear out your tires) because almost every SP12M part is unique. You might be able to borrow a spur gear and servo mounts from the guy in the next pit, but you'll have to find another Corally racer for everything else unless the parts are on the wall. Then again, we are talking about a 1/12-scale car; it only has so many parts! If your track doesn't stock 'em, load up on spares from Superior Hobbies, and hit the track. With its high-quality parts, timesaving factory assembly and ample adjustability, a Corally SP12M is worth a little extra effort to run. ■

TEST GEAR

Corally Sanyo 3000HV Pro cells
The "HV" stands for "high voltage," and Sanyo's latest-generation 3000mAh nickel-metals definitely bring the juice. Corally matches the cells by capacity and voltage, with the usual matched-pack benefits of maximum punch and run time. Bonus: Corally battery bars and plug sleeves are included.

Additional items used to complete the SP12M:

KO Propo EX-11 transmitter and KR297FZ receiver

KO Propo PDS947Fet Power Digital steering servo

GM Racing V12 ESC

Trinity P2K2 stock motor

Protoform Speed 8 LMP body

SOURCE GUIDE

CORALLY USA (407) 681-5905; corallyusa.com.
TRINITY (732) 635-1600; teamtrinity.com.
KO PROPO USA (310) 532-9355; kopropo.co.uk.
GM RACING distributed by Horizon Hobby (217) 355-9511; horizonhobby.com.
PROTOFORM distributed by Pro-Line (909) 849-9781; prolineracing.com.

track test

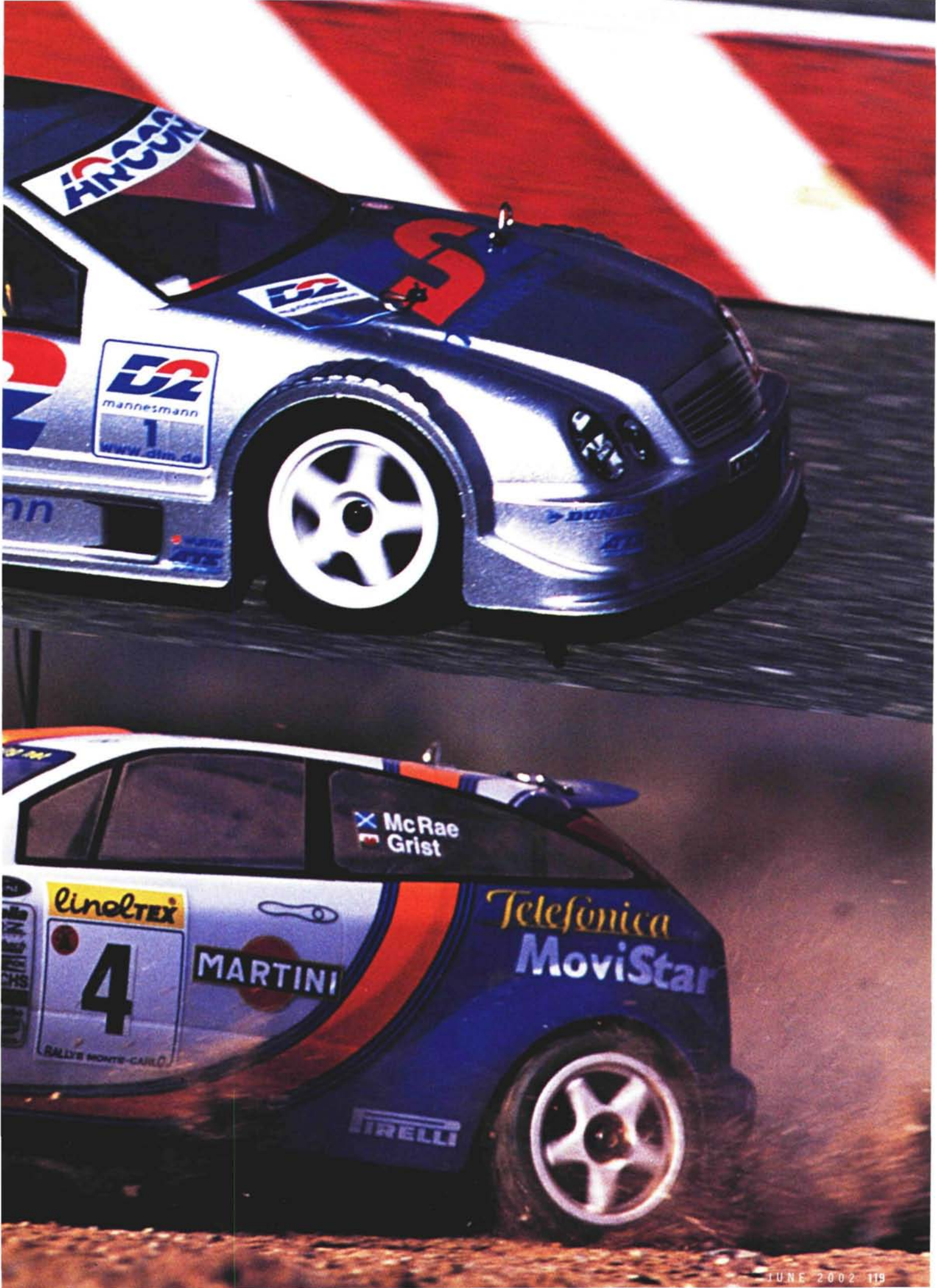
by Peter Vieira 1/10-SCALE ELECTRIC

Kyosho Alpha 2 ReadySets

Shaft-driven and ready to run— on-road or off

NITRO-POWERED READY-TO-RUNS HAVE EVOLVED into complete nothing-to-add packages, right down to included AA batteries and a quart of fuel. Electric RTRs, meanwhile, have lagged behind in completeness; most require you to purchase a charger and battery separately. Not so with Kyosho's electric ReadySet models, which include a 1400mAh stick pack and charger, an electronic speed control (ESC) and a factory-painted body. The latest addition to the ReadySet line is the Alpha 2 touring platform, which updates the previous Alpha's belt-and-gearbox drive train with a simpler, no-maintenance shaft-drive system. The Alpha 2 chassis is available in Mercedes D2 AMG CLK and Corvette C5R models for road work, while rally fans can choose Ford Focus and Peugeot 206 versions. I drove the Ford and Mercedes kits.

PHOTOS BY WALTER SIDAS


mannesmann
1
McRae
Grist
linoltex
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MARTINI
Telefónica
MoviStar
PIRELLI

Kyosho's X-Speed motor performs like other sealed-endbell 540 stockers, but it earns style points with its black can.

DATA CENTER

VEHICLE TYPE 4WD electric touring/rally car, RTR
BEST BUYER Convenience- and budget-oriented beginners
KIT RATINGS (poor, satisfactory, good, very good, excellent)
Instructions Very good
Parts fit and finish Good
Durability Very good
Overall performance Good

SPECIFICATIONS

MODEL Alpha 2 ReadySet
MANUFACTURER Kyosho
DISTRIBUTED BY Great Planes
SCALE 1/10
PRICE $195*

DIMENSIONS
Wheelbase 10.2 in. (260mm)
Width 7.7 in. (193mm)

WEIGHT
Total, as tested 48.2 oz. (1,365g)

CHASSIS
Type Molded semi-tub
Material Plastic

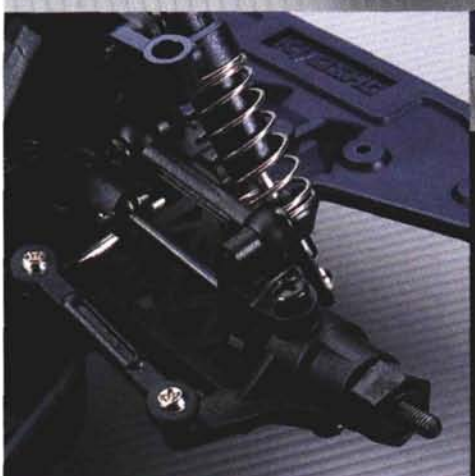
DRIVE TRAIN
Type Shaft
Primary Plastic spur gear/steel pinion
Drive shafts Steel dogbone
Differentials Bevel gear
Bearing type Steel bushings

SUSPENSION
Type Lower H-arm with one-piece camber link
Shocks Coil-spring, undamped

WHEELS
Type One-piece white plastic, 5-spoke

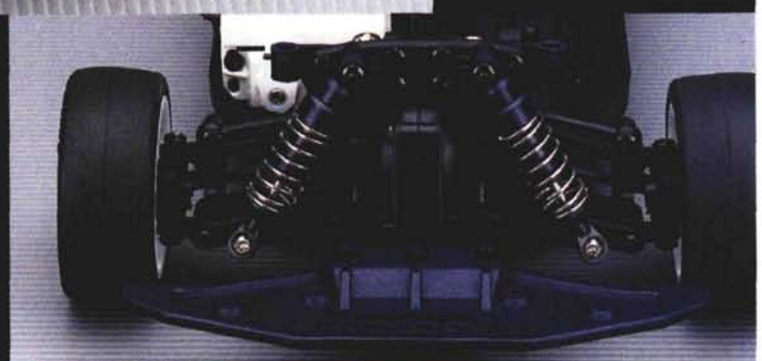
TIRES
Type Hard slick (Mercedes CLK, Corvette C5-R); rally block (Ford Focus, Peugeot 206)

**Price varies with dealer*



Left: one-piece camber links and tie rods don't allow adjustments, but who cares? The guy who buys an Alpha 2 will be into running, not wrenching.

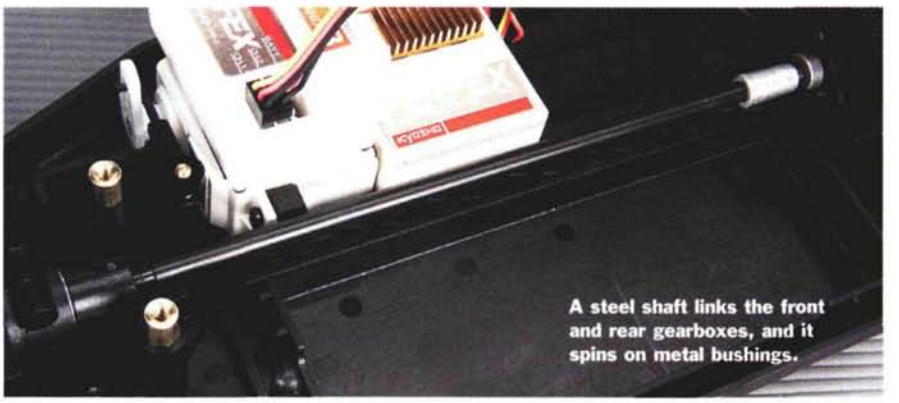
Right: a wide front bumper protects the front end. The front shocks aren't damped; they're really just holders for the springs. Oil shocks are optional.



THE CHASSIS IS ACCEPTABLY STIFF, THANKS TO MOLDED-IN STIFFENING RIBS AND GUSSETS.

KIT FEATURES

CHASSIS. The Alpha 2's chassis layout is defined by its drive train. Like the Tenth Technology Predator, Associated TC3, Tamiya TG/TB series and Academy STR-4 that preceded it, the Alpha's down-the-middle shaft drive dedicates one side of the chassis to the battery, while the steering servo, ESC, motor and receiver take up residence on the other side. Kyosho opted for a TC3-style layout with the battery on the left of the chassis. A swing-down strap holds the pack in place, and an aluminum plate secures the motor to the otherwise all-plastic chassis. Although it is designed with an emphasis on resilience, not rigidity, the chassis is acceptably stiff, thanks to molded-in stiffening ribs and gussets. Whether equipped for road or rally duty, all Alpha 2s include a clear Lexan chassis cover to keep debris out of the works. The car's shaft-drive system is naturally crud-resistant, but its exposed pinion and spur gear make the chassis cover a good idea.



A steel shaft links the front and rear gearboxes, and it spins on metal bushings.

DRIVE TRAIN. The shaft-drive system features front and rear bevel-gear differentials with plastic diff housings and cast ring gears spun by cast bevel pinions. The thick steel drive shaft turns the front diff via a drive cup on the bevel pinion and a dogbone end on the shaft, while the rear pinion is connected to an input shaft that holds a plastic spur-gear hub. A flat on this shaft allows it to be joined with a flat on the drive shaft by an aluminum coupler sleeve. Everything else in the drive system is steel: front and rear dogbones, stub axles and bushings in the hubs and on the diff outdrives.

SUSPENSION AND STEERING. The Alpha 2's shaft drive is new, but its suspension is lifted directly from the first Alpha. It's basic RC stuff: lower H-arms, one-piece plastic camber links and steering tie rods, and C-carriers with plastic steering knuckles. The inboard hinge pins are captured in plastic mounts, and screw-pins are used at the ends of the arms.

Low-profile plastic shock towers are home to the Alpha's pogo-stick shocks, which do not offer any damping and are better described as "spring holders." Basically, each shock is a steel shaft in a plastic cylinder with a shoulder on the cylinder to hold the spring and a conventional spring perch on the shock shaft.

The steering system is a non-adjustable, double-bellcrank design with a one-piece plastic drag link and a softly sprung, integrated servo-saver. The included steering servo actuates the bellcranks via a wire Z-bend linkage.

BODY, WHEELS AND TIRES. Kyosho paints the Alpha 2's body for you with a solid-silver scheme for the Mercedes and a blue-and-white treatment for the Ford Focus rally car. I found the Mercedes to be well coated, but the Ford's white paint was thin enough to allow the dark blue applied over it to show through prominently in some areas. Both cars include ample sheets of decals, which helped cover some of the Ford's paint flaws, but they aren't opaque enough to hide the break between the blue and white halves of the car. The decals' translucence wasn't a factor for the Mercedes, thanks to its monochromatic paint job.

Five-spoke, one-piece wheels are included with both cars. The Mercedes and Corvette models get slicks, while the Peugeot and Focus rally cars get lugged treads. Foam inserts aren't supplied, and the tires are not glued, but their firm-compound rubber is stiff enough to go without inserts. The Alpha 2's mild performance isn't enough to peel the tires off the rims under most conditions.

INCLUDED ELECTRONICS & ACCESSORIES

Kyosho Perfex KT-2 transmitter and receiver
Kyosho scores bonus points by including a high-quality radio set with its ReadySet vehicles. In addition to the usual trim knobs and reversing switches, the KT-2 has dual-rate steering and a 3-LED battery meter. The radio's AA batteries (which aren't included) are installed in the handle, which gives the KT-1 a chunky, comfortable grip. It's a good unit and worth transferring to another vehicle as your RC collection grows.

Kyosho Perfex KA-1 electronic speed control
Instead of push-button setup, the KA-1 has no-button setup; it's preset at the factory. Kyosho is light on specs for the ESC, but the important thing is how it performs, and it performs well. Forward throttle is smoothly proportional, and the KA-1 rolls softly into reverse to serve as a brake.

Kyosho KS201 steering servo
Like standard servos from other brands, the KS201s provide about 35 to 40 oz.-in. of torque—plenty for an entry-level car like the Alpha 2. Kyosho also uses the KS201 in other cars with greater power demands, and the servos have proven to be reliable.

Kyosho Sport Power 1400mAh battery
It's a plain-Jane stick pack with a modest 1400mAh capacity, but the important thing is that it comes with the car. Although light on run time compared with a 2000 or 3000mAh pack (which are also considerably more expensive), the Kyosho battery was still good for about 8 minutes, thanks to the frugal X-Speed motor.

Kyosho wall charger
The Alpha's included wall charger fills the battery pack at a 300mAh rate, which means you'll have about 6 hours of downtime between runs. That's much too long to wait, but the charger will at least let you juice up the battery while you decal the body. Hit the hay, wake up to a charged pack, then go out and play. When the pack dumps, head to the hobby shop for a "sport" peak charger like the DuraTrax Piranha. Pick up an extra stick pack or two while you're at it!

Kyosho X-Speed motor
This sealed-endbell stocker propelled the Alpha to a respectable 17mph top speed and made the most of the included battery's capacity.

YOU'LL NEED
- Transmitter batteries (8 AA alkaline)

FACTORY OPTIONS
- Universal-joint axles (pair)—item no. W5066
- Drive washer for universal axles—SP2
- Threaded-body Teflon shocks—W5155
- 5x10mm bearing set (4 per set)—96996
- 8x14mm bearing set (4 per set)—96999
- Turnbuckle tie-rod set—SPW5
- Rod ends for turnbuckle set—W5130
- Pivot ball for turnbuckle rod ends—1284

ReadySet is Kyosho's take on RTR, with an emphasis on completeness; everything you need is included, with the exception of AA batteries for the transmitter.

HPI RACING
TOURING CAR
BODIES!

#7475 Acura RSX (200mm)

#7473 Dodge Viper GTS-R (200mm)

#7460 Chevrolet Camaro SS (200mm)

#7472 Mercedes-Benz AMG C-32 (200mm)

#7424 Toyota Supra (200mm)

#7352 BMW M3 GT (190mm)
#7452 BMW M3 GT (200mm)

#7470 VW Beetle Cup Racer (200mm)

#7468 Lamborghini Diablo GTR (200mm)

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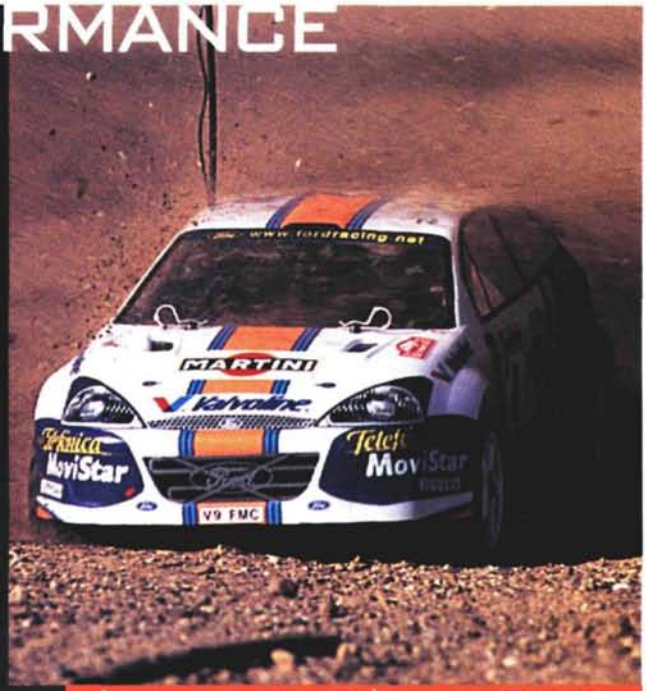
PERFORMANCE



I took the Mercedes out for a spin first, and I found its hard, slick tires to be a perfect match for the car. The X-Speed motor had enough power to light 'em up, and it was no trick to get sideways and slide the silver car around corners. Reverse made 180s and similar stunt maneuvers simple, and jumping the car over speed bumps and manhole covers didn't faze the Alpha chassis—although it sure did bounce around a lot, thanks to the springy, undamped shocks. The unglued tires stayed on the wheels unless the car was pitched sideways over a break in the pavement, and nothing bent or broke, despite a few body-scuffing skirmishes with the curb.

IT WAS FUN TO SLIDE THE FOCUS AROUND IN THE SOFT STUFF LIKE A REAL RALLY MACHINE

The rally car came out next, and I headed directly for the dirt with the Ford Focus. The car may look rally, but it isn't really an off-road machine. With little shock travel and no damping, the Focus rebounded harshly over every bump and didn't have the ground clearance to tackle anything other than smooth dirt. But as long as I stuck to smooth dirt, it was fun to slide the Focus around in the soft stuff like a real rally machine (just look at the pics). On the street, the taller sidewalls of the block-tread tires peeled from the rims more easily and made the car a little less predictable than the slick-tire Mercedes, but it was still fun to bang around with.

My only real gripe with the Alpha 2 cars is transmission noise. The gearboxes on both cars sounded dry, although disassembly revealed that they were well-lubed at the factory. I think part of the problem is the bushings that the transmission parts spin on; there must be a certain amount of play for the parts to spin freely, and this play allows the gears to float, which makes the mesh noisy. Ball bearings would help alleviate this, as would some break-in time; as the gears "wear in" they should quiet down. Noise notwithstanding, the Alpha 2 shaft-drive system performed very well.

LIKES

- Complete RTR, right down to a charger and battery.
- Factory-painted, with clear windows and full decal sets.
- Crud-proof shaft drive.

THE VERDICT

Kyosho's Alpha 2 ReadySets score highly in completeness, thanks to their painted, clear-window bodies and included batteries with wall chargers, and the electronic gear is first rate; I wouldn't hesitate to transfer the Perfex gear to another sport car. The Alpha 2s are very entry-level-oriented in box-stock trim, but there's hop-up potential in the form of ball bearings, hotter motors, stickier tires—all the usual RC options. I wouldn't choose an Alpha 2 if the goal was to eventually go racing, but the performance and fun factor can certainly be increased. The Alphas are good cars to grow with; they're fast enough for first-timers and have upgrade potential, and when you're ready to try something new, you can swap the Perfex gear into your next car. ■

DISLIKES

- Gearboxes are noisy, at least when new.
- Recharging with included wall charger takes hours.

SOURCE GUIDE

KYOSHO distributed by Great Planes (800) 682-8948; kyosho.com.

O.S. Engines
Max 21RZ-V01b

by Peter Vieira

Off-road rage

The RC powerplants produced by O.S. Engines have long been Japan's benchmark for innovation and quality, and the company's RZ series represents the pinnacle of its high-performance design capabilities. The latest in the line is the RZ-V01b—a .21 powerhouse designed expressly for off-road duty and tuned to deliver maximum punch at minimum rpm—just what heavy ⅛-scale buggies need for slingshotting from corner to corner and blasting over doubles and triples. After an up-close-and-personal session with the V01b's internals and a run on the dyno, I bolted O.S.'s latest into a GS Racing Storm to see how the numbers would translate into on-track performance.

PHOTOS BY WALTER SIDAS

>> SPECIFICATIONS <<

MODEL: RZ-V01b

MANUFACTURER: O.S. Engines

DISTRIBUTOR: Great Planes

PRICE (varies with dealer): $290

BORE: 16.6mm

STROKE: 16mm

CARB: 2-needle slide, 7.5mm bore

SLEEVE MATERIAL: chrome-plated brass

TRANSFER/BOOST PORTS: 3

CRANK BEARINGS: 7x19mm front (rubber sealed), 13x25mm rear

CYLINDER HEAD: one-piece finned heat sink for standard glow plugs

PEAK TORQUE: 94.5 oz.-in. @ 21,200rpm

PRACTICAL RPM RANGE: 3,000 to 40,000

MAX. RPM: 40,000

RPM @ PEAK HORSEPOWER: 24,700

MAXIMUM POWER OUTPUT: 2.15bhp

WEIGHT: 330g (11.6 oz.) without tuned pipe and header

INCLUDED ACCESSORIES: air filter with two foam elements; O.S. no. 8 glow plug; vinyl caps for the carb, exhaust port and fuel fitting; instructions.

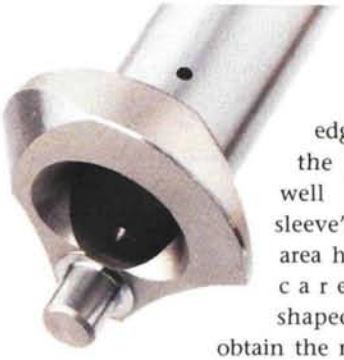
FEATURES

■ **2-needle slide carburetor.** Would you expect anything less than a 2-needle carb in a full-race engine such as the V01b? The carb's bore is 7.5mm—a compromise between the 7 and 8mm bores common to this type of engine. A plastic sleeve on the carb neck helps insulate the aluminum carb body against heat from the block, and that helps the carb maintain the proper mixture of air and fuel. The idle-stop screw is loaded by a spring to help it hold adjustment, and a pliable rubber boot keeps dirt out of the slide valve. The valve operates very smoothly and freely—no lumps or tight spots.

■ **New crankshaft with lubrication channels.** O.S. put a lot of engineering time into the crank. Both the induction-port opening and the exit in the crank journal have been carefully massaged for efficient mixture flow, and the crank's counterbalance is shaped to direct fuel (and the lubricant it contains) into the rear crank bearing. The bearings prevent the crank from contacting the block, but O.S. isn't taking any chances; a shallow channel between the bearings allows fuel to pool and lubricate the crank if it contacts the block under load.

The V01b also has a unique means of lubricating the crankpin (the part of the crank that the connecting rod rides on). Typically, a hole is drilled in the connecting rod to guide fuel through the rod bushing to the crankpin. This works, but the hole weakens the connecting rod. Instead of putting the hole in the conrod, O.S. drills a hole in the crank to feed fuel through the crank journal to the crankpin.

■ **Chrome-plated sleeve.** Because of environmental regulations in Japan, chrome plating is very expensive there, so O.S. reserves chrome-plated sleeves for its very best engines, including the V01b. The sleeve has two Schnuerle transfer ports, one boost port and an exhaust port. Having four ports doesn't sound impressive when you're bench racing, but four well-designed ports are all it takes to win on the track, which is always more satisfying than bench competition. Unsurprisingly, the edges of all the ports as well as the sleeve's skirt area have been carefully shaped to obtain the most efficient fuel flow; there are no square-edge, punched-out ports here.



■ **Billet connecting rod and lightweight piston.** The V10b's aluminum piston is very light at 3.5 grams, and it features a pair of oil grooves around its circumference to help keep the piston and sleeve well-lubed with fuel. To keep the wristpin and upper-rod bushing happy, a pair of openings in the piston skirt help lubricating fuel find those critical parts.

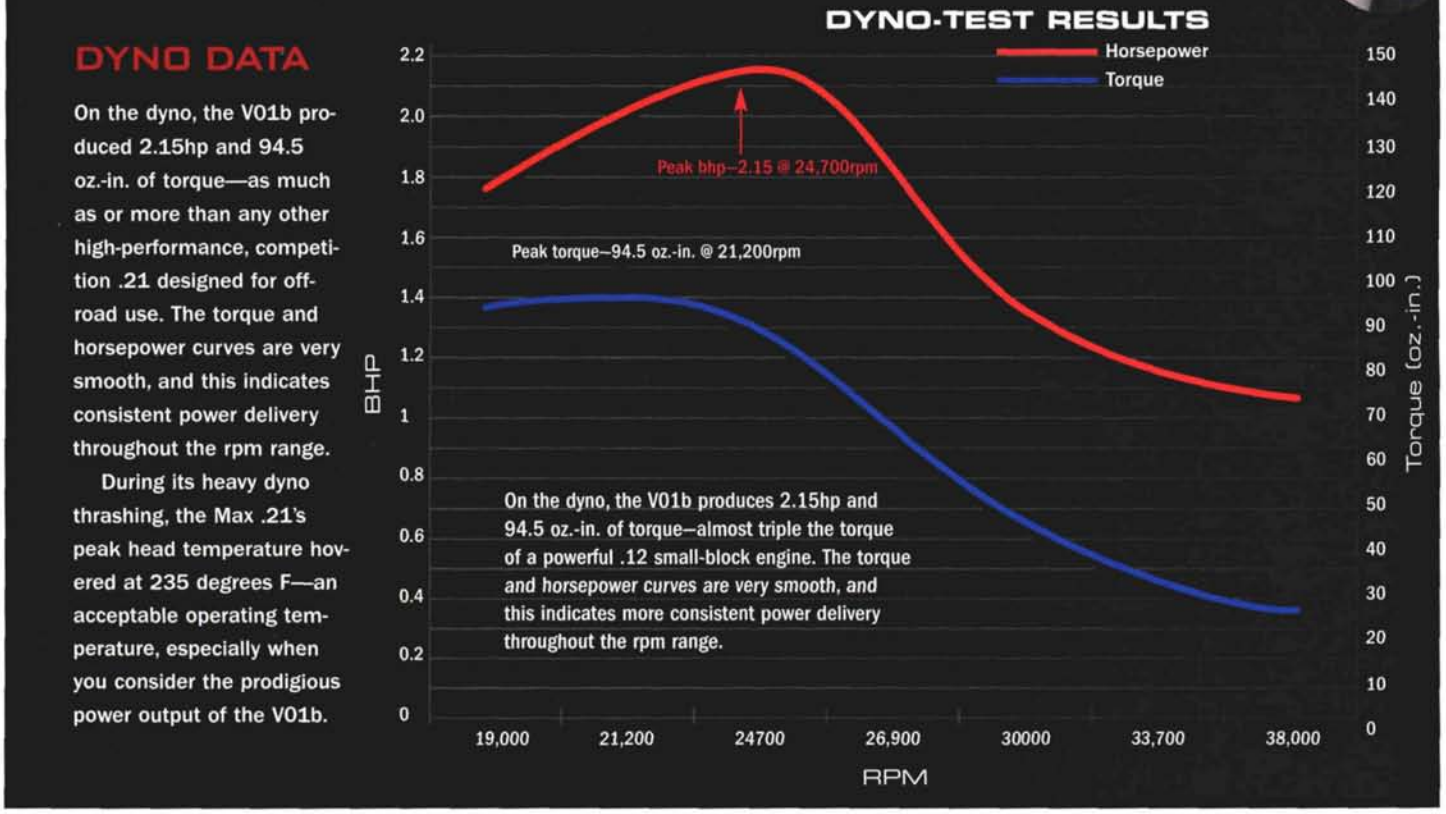
The conrod is a healthy-looking slab of machined-aluminum billet, and both ends are bushed for minimum friction and maximum rod life.

■ **Nine-fin heat-sink head.** Six screws clamp the one-piece, blue-anodized head to the

DYNO DATA

On the dyno, the V01b produced 2.15hp and 94.5 oz.-in. of torque—as much as or more than any other high-performance, competition .21 designed for off-road use. The torque and horsepower curves are very smooth, and this indicates consistent power delivery throughout the rpm range.

During its heavy dyno thrashing, the Max .21's peak head temperature hovered at 235 degrees F—an acceptable operating temperature, especially when you consider the prodigious power output of the V01b.



ON THE TRACK

Even "sport" .21 engines make a lot of power compared with small-block mills, and I've never been disappointed by any .21-powered machine (that includes the Storm RTR and its stock GS engine). But a racing .21 engine such as the V01b is a whole 'nother animal; it easily matches the peak output of a "sport" engine, and then just continues to make power—lots of power. Off-idle response is crisp, with little tendency to load up at idle. If you reel in the trigger gently, the V01b will build power smoothly, and there's tons of torque on tap. Picking around a technical course with this engine is a pleasure; the V01b doesn't need a lot of rpm to make power, so I didn't have to rely on nearly full-throttle stabs to power the Storm through tight sections. All I had to do was roll on and off the gas as the track required, and that made it very easy to maintain a flowing line instead of the square-edged path required by the squirt, squirt, squirt driving style suited to peaky, narrow-power-band engines.

As the dyno results show, peak power output occurs at just 24,700rpm, which the engine can reach almost instantly. On long tracks, the V01b can pull a tall gear to achieve warp speed on the straights. On my shortish test track, the controllable but quick power delivery gave the V01b-equipped Storm the corner-to-corner rip it needed to get around the pipes quickly and a deep power reserve for blasting over doubles without the benefit of a long runway.

The V01b's impressive performance was no surprise, but the engine's rock-solid reliability was unexpected. I expect high-power engines to be high-strung, but this O.S. powerplant is an all-day runner that doesn't demand down-to-the-last-click accuracy when you dial in the carb settings. The engine was also content to sit at idle without a high-rpm idle setting, and unless I went right for full throttle after the engine had idled for more than a minute, it never stalled. Otherwise, feeding in the throttle gently allowed the V01b to "clear its throat" and move out without missing a beat. For certain, if the engine is tuned properly, you'll be able to park your V01b-equipped buggy on the start grid for "down and quiet" starts without fear of a flameout on the start tone.

INSTALLATION AND BREAK-IN

I dropped the V01b into the Storm RTR test buggy without a hitch. There could be a clearance issue with the rear-mounted boost chamber on some vehicles, but most 1/8-scale buggies have plenty of real estate to accommodate the V01b's extra length.

We used Trinity Monster Horsepower 20-percent blend for break-in and testing.

I followed the engine's included instructions to the letter and broke in the engine as detailed in the excellent manual that's included. O.S. uses a conservative approach and suggests you run no fewer than five tanks through the engine and that you lean the high-end needle 1/12 turn (starting from the maximum rich but runnable position) after each tankful. The slow break-in process may try your patience as you fight the urge to "see what it can do," but who wants to take a chance with a $300 engine?

TEST BED

- >> GS Racing Storm RTR
- >> Monster Horsepower 20-percent nitro fuel
- >> O.S. no. 8 glow plug
- >> GS Racing header and tuned pipe (stock Storm RTR parts)

block; there's no separate "button." This is a minus if you're prone to stripping glow-plug holes, but it's a plus in terms of cooling performance; heat goes straight into the head.

■ **Boost chamber.** The V01b's backplate isn't just a backplate. O.S. caps the backplate to form an empty chamber that's joined to the block's venturi section (the area directly beneath the carb) via pressure fittings and a short length of tubing. Although called a "boost chamber," the design doesn't actually supply "boost" in the sense of increased induction volume or velocity. Engines with aggressive induction-port timing such as the V01b can suffer from "reversion pulses" at low rpm, and these can cause the air/fuel mixture to try to flow back up through the carb. The boost chamber, in simple terms, is meant to minimize the negative effects of these reversion pulses. ■

SOURCE GUIDE

GS RACING distributed by Horizon Hobby (217) 355-9511; horizonhobby.com.

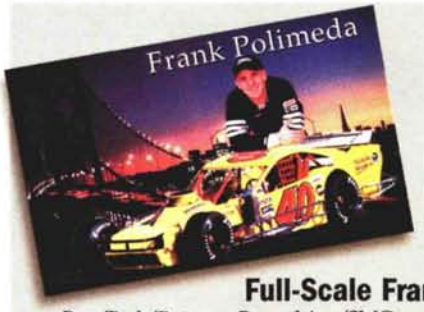
MEGATECH (201) 662-8500; megatech.com.

O.S. ENGINES distributed by Great Planes (800) 637-7660; osengines.com.

RACER NEWS

SPONSORED BY KYOSHO THE FINEST RADIO CONTROL MODELS

BY GREG VOGEL AND PETER VIEIRA



Full-Scale Frank

RaceTech/Putnam Propulsion/SMC factory pilot Frank Polimeda isn't just an RC oval ace; he's also a pro behind the wheel of the real deal! Frank and his Polimeda Performance Motorsports team wheel a 1996 Ford Troyer in the Asphalt Modified class with sponsorship from NResearch. You can see him in action at Wall Stadium in Belmar, NJ. If you'd like to learn more, take a look at frankpolimeda.com.

Jaco and Pro-Line split

This tire story all comes down to East Coast versus West Coast (kind of like rap). Jaco is in Virginia, Pro-Line is in Cali, and the distance between the two caused enough logistical problems that both agreed it would be better for Pro-Line and Jaco to operate independently (sorry, industry soap-opera fans; it's as simple as that!). Jaco will still use Pro-Line wheels, so nothing is going to change for us at the customer end; we'll be getting the same high-quality tires.

SITE SEEING

vintagetamiyarc.com

What was your first RC car? Five bucks says it was a Tamiya. (Not an actual bet. If your first rig wasn't from the Big T, we're not sending you any money.) If you long to relive those glory days, check out vintagetamiyarc.com; it's worth visiting for the old-to-new Porsche morph alone, but the real attraction is the scads of cool pix and kit info to send you full-throttle into Reagan-era RC heaven.

BOARD WALK

FROM THE RADIOCONTROLZONE .COM BULLETIN BOARD

Associated RC10T4?

SAPPERSLY: Does anyone know if Associated is coming out with a truck to replace the T3?
NITRODRIVER: I'd say it's at least 2 years away.
SOYA: Associated's T3 keeps winning races. Why should they redesign it?
RC10T3: At least 2 years? It's been 5 years already!

First-time charging NiMH

AVAGNIK: I just got my new Sanyo 3000 NiMH 6-cell batteries. How do you recommend charging them for the first time?
CHIZZLER: You should probably discharge and recharge them to get any pre-store charge out of them, and, yes, you should discharge NiMH cells.

What do you use to clean your engine?

PRORACER03: Denatured alcohol, nitro spray and a toothbrush work well.
RUSTLER DUDE: I use HPI Nitro Car Cleaner. A toothbrush is great, too; also use the small straw that comes on the WD-40 can to flush out the dirt.
BUBBASTUMP: I use Trinity Buggy Blast. It's real good at getting tough grime and mud off my GT.
EINSTEINDKS: Simple Green for me, along with a toothbrush and elbow grease; nontoxic, biodegradable and nonflammable. Tough spots get a quick shot of WD-40 and are left to sit overnight before cleaning.

BE HEARD!
LOG ON AT WWW .RADIOCONTROLZONE.COM

NEWSFLASH

Billy Easton Sweeps Silver State

Billy Easton picked up two major wins at the Silver State Championships. Easton took the TQ in the 1/10-scale Nitro Truck class with his Associated RC10GT and went on to win the 45-minute A-main with a cushy 2-lap lead over second-place finisher Richard Saxton. Easton and his Thunder Tiger EB-4 S2 qualified third in the highly competitive 1/8-scale Buggy class behind Kyosho drivers Greg Degani and Richard Saxton, who qualified in first and second, respectively. These three drivers battled it out in the Main, but after 45-minutes of door-to-door racing, Easton crossed the line with the win. Looks as if Billy Easton is going to be the man to beat at the ROAR Off-Road Fuel Nats this summer; we'll be there to catch the action.

Associated to run Tenth Technology Predators at Worlds

Longtime readers (and Euro-tech fans) will recall the Tenth Technology Predator 4WD buggy that shook up the four-wheel status quo a few years ago with its inboard, bell-crank-actuated shocks and ingenious shaft drive. Tenth Tech never really gained a foothold in the U.S., but its Batmobile-like buggies never stopped winning overseas. The big news is that Team Associated's Mark Pavidis, Billy Easton, Scott Brown, Lloyd Dassonville, Craig Drescher and Neil Craig will all be campaigning Reedy-powered Predators at the Worlds in South Africa. With top drivers wheeling the cars, we could be looking at a major upset!

POLIMEDA, LEMIEUX SNATCH SNOWBIRDS

Mike Boylan put on another marathon edition of his Snowbird Nats, and once again, the Orlando Ramada Inn was ground zero for nonstop on-road and oval carpet action. In the big mod classes, Paul Lemieux (right) pulverized 4WD Pro Mod with his Trinity-powered Losi Triple-XS, and left-turn legend Frank Polimeda laid the smack down in 6-cell Pro Mod with his Hyperdrive ride backed by Putnam Propulsion power and 6 SMC cells. Look for full coverage in the next issue.

ON-ROAD

Class	Driver	Chassis	Motor	Battery
4WD Pro Mod	Paul Lemieux	Losi Triple-XS	Trinity P-94	Trinity SMH
4WD 19T Foam	Jared Scott	Assoc. TC3	Fantom	SMC Sanyo HV
4WD Stock	Scotty Ernst	Assoc. TC3	Handout	Reedy Extreme
4WD 19T Rubber	Ron Atomic	Schum. Mission	Handout	Kinetix SMH
1/12 Mod	Mike Blackstock	Associated	Reedy T1	Reedy Extreme
1/12 Stock	TJ Bradley	SpeedMerchant	Handout	SMC Sanyo HV
Legends	Mark Johnson	Bolink Legends	Handout	Handout

OVAL

Class	Driver	Chassis	Motor	Battery
6-cell Pro Mod	Frank Polimeda	HyperDrive	Putnam	SMC Sanyo HV
4-cell Pro Mod	Brian Burkhart	RaceTech	Putnam	SMC Sanyo HV
19T Mod	Brian Burkhart	RaceTech	Putnam	SMC Sanyo HV
1/12 Pro Mod	Josh Cyrul	Trinity SB12	Trinity P-94	Trinity SMH
1/12 Stock	Tom Postawait	CRC Razor	Handout	SMC Sanyo HV
4-cell Stock	Mike Ulbrick	Custom	Handout	Hurricane
6-cell Stock	Phil Marabella	Trinity SB	Handout	Trinity SMH
Losi Super Stock	Jim Myers	Losi Triple-XS	Handout	Orion Sanyo HV

RUMOR MILL

■ **NEW SNEAKERS** Word is that Pro-Line is testing a new blue-groove tire for trucks and buggies. No name or technical details to report yet, but we've heard the Pro-Line guys are hooked up. ■ **SEEING RED** SoCal Raceway regulars racers have been spotting a red RC10B3 with blacked-out windows testing at the legendary track. Here's the spy stuff: that "one" buggy is actually six different prototypes Associated has been testing in preparation for the Worlds. What unobtanium lies under the body? Only the A-Team knows. ■ **GOT A GOOD ONE?** If you've got a rumor to share, email it to rumormill@airage.com.

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SPEED SHOP

CROSS RACING
Wheels

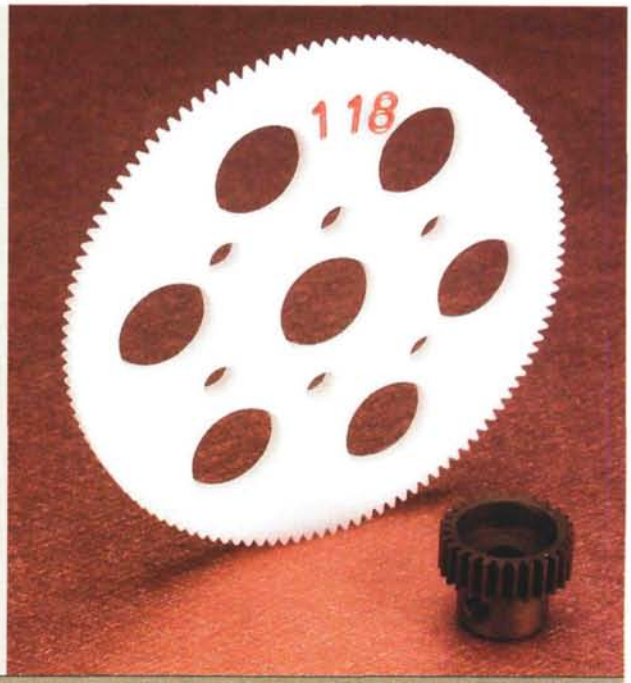
If you have problems finding wheels to fit your pivot-ball touring car, consider Cross's zero-offset 24mm touring rims. Molded of flexible, high-impact nylon, they are light and very durable and are offered in spoke, mesh and dish versions. All have the clearance needed for pivot-ball steering knuckles.

Wheels—item no. CWR2408B (black dish), CWR2408 (white dish), CWA2408 (white 15-spoke), CWB2408 (white mesh); $9.99/pack of 8.
Cross Racing (949) 756-1219; rc-cross.com.

RW RACING
High-performance pinion and spur gears

In Europe, RW Racing is well known as a manufacturer of high-performance pinion and spur gears, and its products are now available in the U.S. from Schumacher USA. The pinions are machined of steel and lightened to reduce rotating mass. A refining process gives the teeth a fine finish, so they work quietly and with minimal drag, according to RW. Instead of nylon or Delrin, the spurs are machined of a "special engineering plastic" that RW says makes them more stable through temperature changes, and they're guaranteed to be concentric to 0.001 inch. The pinions and spurs are available in 48 and 64 pitches.

Pinions—$3.99.
Spurs—$6.99.
Schumacher USA
(813) 889-9691; racing-cars.com.



HARDCORE RACING COMPONENTS
MP 7.5 Aluminum parts

Check out the high-quality machining on these new Hardcore upgrade parts for the Kyosho MP 7.5. The lightweight steering knuckles are direct replacements for the stock cast parts and feature precise bores so the bearings fit tightly. The front and rear chassis braces offer better support than the kit's rod-type stiffeners; they are bolted directly onto the stock stiffener locations without any modifications. The parts are available in green, silver and purple.

Rear brace—HCR-04321; $32.99.
Front brace—HRC-04311; $30.99.
Knuckles—HCR-04331; $76.99.
Hardcore Racing Components (661) 294-5032; racinghardcore.com.

VENOM
VTM ONBOARD TEMP MONITOR

Look what just slithered into our offices (OK ... no more lame snake jokes). Venom's VTM onboard temperature monitor has a long temperature-probe loop for easy mounting and a unique minimum/maximum temperature feature that allows the VTM to record and recall the highest temperature recorded during each run. An on/off switch conserves battery power, and the display can be toggled from Fahrenheit to Celsius.

VTM—VEN-0600; $39.
Venom Racing USA (949) 451-8551; venom-racing.com.

TREADZ TOOLZ
Glow-plug caddy

The Toolz line from Treadz now includes a compact glow-plug caddy that holds up to eight plugs. It is machined from aluminum and has the holes offset on each side to store the plugs. The compact design allows you to easily store your plugs in the narrow drawers of your toolbox, and like the other Toolz, it's engraved with the TZ logo.

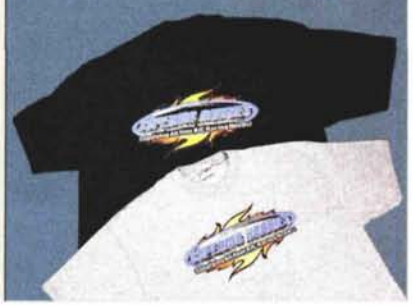
Glow-plug caddy—TLZ TZGPH1; $12.99.
Treadz; distributed exclusively by HRP (801) 978-9500; treadztires.com.

TRACK THREADS

SUPERIOR HOBBIES T-shirt

We don't usually mention shop shirts in "Track Threads," but Rob Michaels of Superior Hobbies earned a plug by donating shirts to each of the 400-plus entrants in the recent Snowbirds Nationals. Definite props to Rob and Superior Hobbies for their generosity; racers just love getting free shirts. If you want one of these cool shirts, contact Superior Hobbies (but you'll have to pay for yours).

L, XL and XXL—$15.95.
Superior Hobbies (407) 834-9299; superiorhobbies.com.



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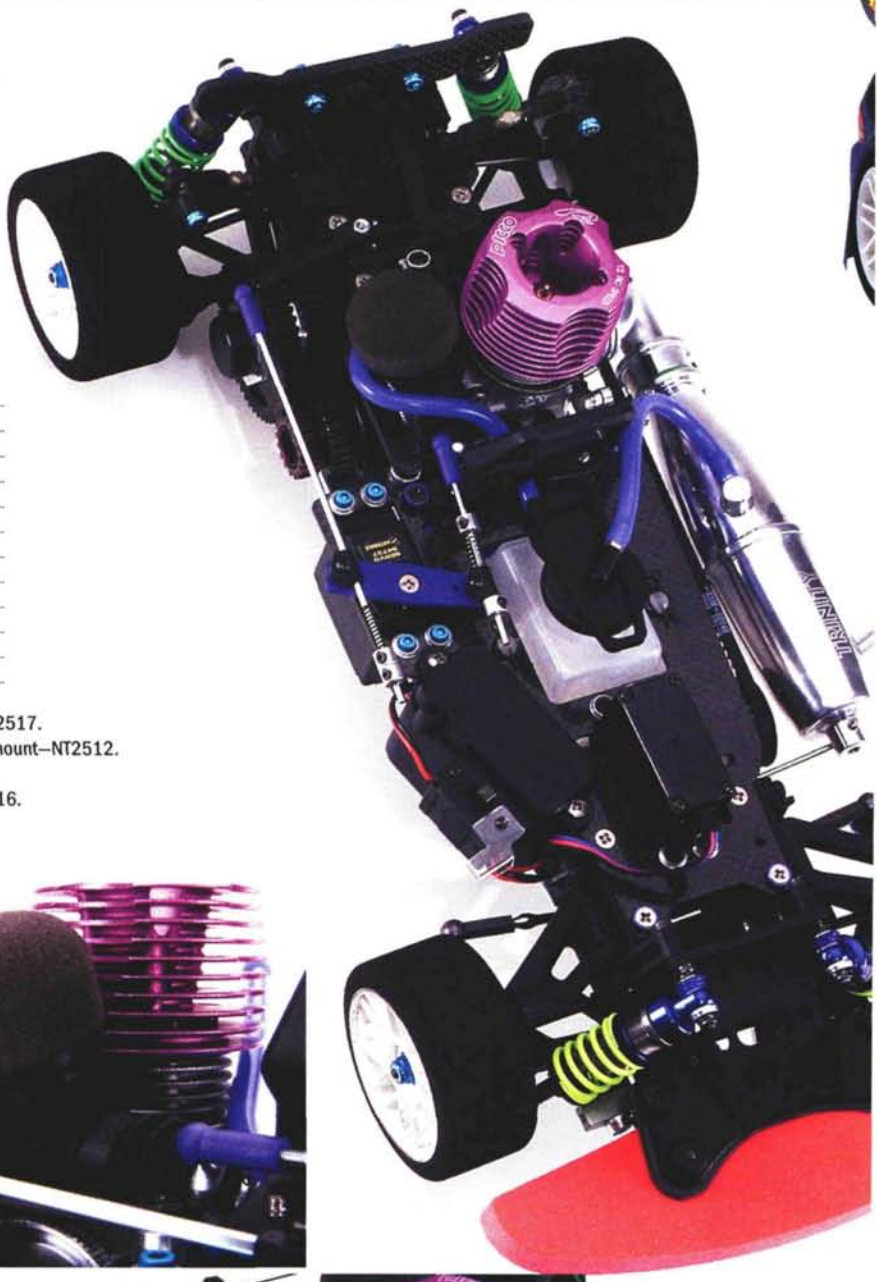
UNDER THE HOOD

Joel Johnson
Trinity Reflex NT



RACE GEAR

Radio system: Airtronics M8
Steering servo: Airtronics 94357
Throttle servo: Airtronics 94737
Engine: Picco .12 RC Speed
Gearing: stock
Tires (F/R): TRC foam, red/purple
Body: Trinity Nitro Rocket

SETUP	FRONT	REAR
Caster/anti-squat	8°	0°
Camber	1°	1°
Toe	1° out	2° in
Ride height	5.5mm (level)	
Swaybars	None	
Shock fluid	45	70
Shock pistons	Stock	
Spring	Yellow	Green
Front shock location (upper/lower)	–	Lower
Rear shock location (upper/lower)	Top	Lower
Rear camber-rod location (hub/bulkhead):	Upper	Lower

FACTORY OPTIONS

- Hard-anodized pulleys–item nos. NT2077, NT2078, NT2064, NT2065, NT2037.
- Hard-anodized rear heim joints–NT2152.
- Front swaybar mount–NT2509A.
- "Big Bash" bumper–NT2517.
- Aluminum middle belt mount–NT2512.
- In-Line pipe–RC8128.
- Shock spring set–NT2516.

MODIFICATIONS

The front upper shock mounts are now on a ball; I used a set of the rear heim joint aluminum pieces (NT2033) and drilled out the shock cap with a 0.268-inch drill bit to fit over them. We have a replacement standoff and ball mount coming for the shocks, probably about the time you read this. These are prototypes. I installed titanium and aluminum screws throughout and made a trick little switch safety cover to keep the switch from being accidentally turned off. It also helps keep fuel away from the internals. I installed Trinity hard-coated pulleys. The air cleaner is a new Trinity item; it's a nice, small size for .12s. Sorry; no part number on that yet!

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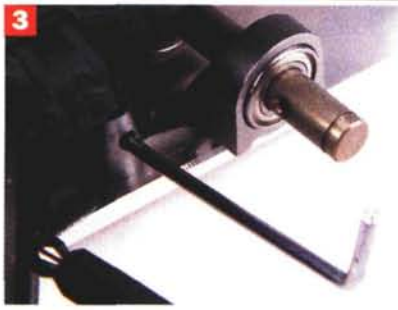
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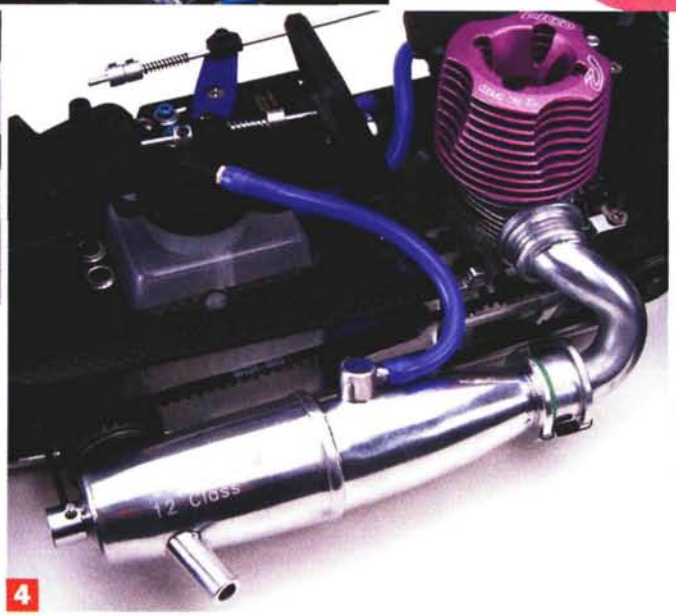
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1. The little mushroom air filter is pretty sweet. Where's King Koopa?

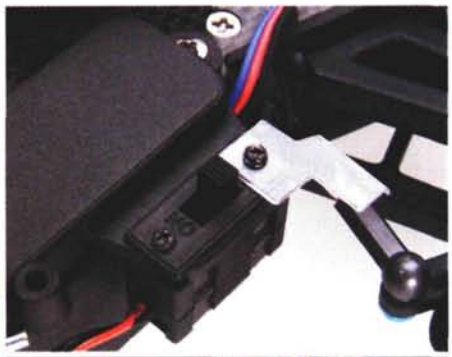
2. Joel upgraded to Trinity's hard-coated pulleys for maximum wear and minimal belt drag.

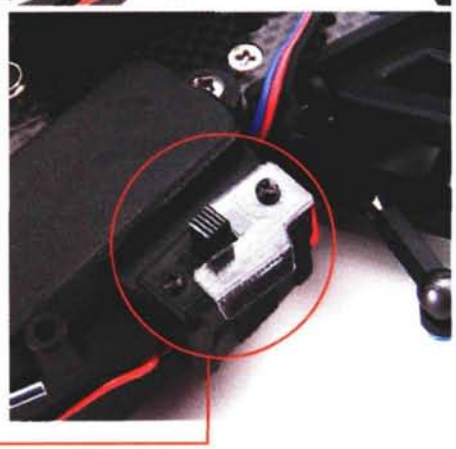
3. Note that the pipe hanger mount is incorporated into the aluminum bearing carrier. Trick.

4. Joel isn't taking chances on a silicone-coupler blowout; he uses Trinity's spring-coupled In-Line pipe.

FACTORY DRIVER HOT MOD

This is the coolest thing we've seen in a while, and all you need is a scrap of Lexan and about 1 minute for the install. Just swing the Lexan switch guard into position, and race your Main secure in the knowledge that even the worst pileup won't be able to knock the switch into the "off" position.





5 QUESTIONS

DRIVER: Joel Johnson
AGE: 34
SPONSOR: Trinity
LAST BIG WIN: 1999 ROAR 1/10 and 1/12 Outdoor Nationals
FAVORITE TRACK: the old Ranch Pit Shop track
WHEN I'M NOT RACING OR WORKING: I used to ride my Ducati Monster until I sold it last winter. I plan to get another one soon. Now I work on my house, take weekend trips around the Northeast with my wife, Julie, and enjoy the Jersey Shore at my in-laws' beach house.

RADIO CONTROL CAR ACTION: You mentioned your Ducati and that you might get another; another Duck, or something different?
JOEL JOHNSON: It's a tossup between a cruiser and another Duck. I think I'm a little big for the Monsters, but I love the sound and the Ducati lore. I'll probably wind up with some sort of cruiser that better fits my size.

RCCA: So is it safe to say you'd be into dropping a .26 desmodromic 4-stroke into your Reflex NT?
JJ: I think it would sound excellent! Ducatis ... the whole thing for me is the sound. I would love to see a desmo .26—especially if it was Italian!

RCCA: It would be cool if 4-strokes in general caught on more as performance items. There could be hotter aftermarket cams, carbon-fiber mufflers ....
JJ: I think some people are missing the boat. The ones I've see run pretty well, especially on club-size tracks.

RCCA: What are you doing for Trinity? You're racing on the side, but that's not your main gig, right?
JJ: My main focus is information systems development. I'm redoing the website and Tech Talk; then I'll do the inventory control and management systems. When I retired from racing, I got my degree in management information systems—MIS. I'll be up on Tech Talk from time to time, Rich Hawkes from R&D is up there every day, and the team guys are always on Tech Talk, too.

RCCA: You've won just about everything, but is there one race you lost that you wish you could run again?
JJ: We were just talking about that here this morning! It's the '86 Worlds in Vegas. This was back when they added up the times, and I came in second to Tony Neisinger by a second or a second and a half. That's the closest I've ever come to winning a 1/12-scale Worlds. I actually won the first Main, but we couldn't remember how it went down after that ... that's the race that sticks in my mind as "Wow, I wish I could go back, I was so close ...".

RCCA: Yeah, that's too bad. You'll just have to settle for all those national victories and the unofficial "all-time greatest RC driver" title.

LAST LAP

Are you in favor of a 10-turn motor limit for modified racing? Should motors be limited to an even lower wind—or should there be no limits at all?

I think there should be no limit at all as to the number of turns in an armature. With the innovations of high-capacity cells, racers should be able to use every bit of "juice" available from their batteries. The idea of racing is to go fast, right?
Rob Mayerat

Since the breakthrough in run time, you can use lower turns and last just as long. So why have a limit when they can get faster? Soon it will be a stock class if you put on a motor limit.
Steven Boggs

I think a limit is OK, but there could be two classes: 10-turn and slower and 10-turn and faster. This way, people on a budget can participate in the modified division more fairly with others also on a budget.
Bailey Van Etten

I think that it should be limited to 10 turns because racing shouldn't get more expensive than it is. Racing should be about who is the best driver, not who can buy the fastest motor.
Jesus Pinedo

No limits = more speed. Hey, if you can handle the motor, you should be allowed to drive it. I say more power to the people who dare to race a 6 or 7 turn. Hey wait a minute—I'm one of those people.
Kirk Scheidt

There should be no limits at all for modified racing. C'mon, that's why they call it modified.
Robbie Clements

NEXT MONTH'S QUESTION

What do you like to do for fun between qualifiers? You know—the stuff you do instead of working on your car!

Respond by clicking "Last Lap" at rccaraction.com.

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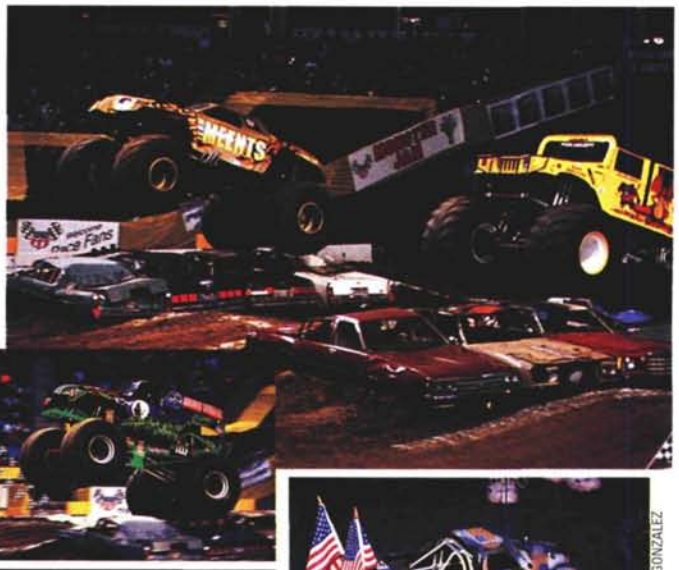
T-Maxx Mania 2002

by George M. Gonzalez

Racing With the Big Boys

Imagine being able to race your T-Maxx inside a sports arena on a full-size monster-truck track in front of thousands of cheering spectators. Well, dozens of T-Maxx enthusiasts had the rare opportunity to do just that at the 2002 T-Maxx Mania event held at the Arco Arena in Sacramento, CA, during a full-scale USHRA Monster Jam race.

Sponsored by Airborne Hobbies, Hardcore Racing, Dynamite, DuraTrax, Pro-Line and *RC Car Action* magazine, T-Maxx Mania was organized to expose a large audience to RC monster trucks. The opportunity to race on a full-scale track in front of thousands of monster-truck fans was only part of the appeal for the racers who competed; the winner of the freestyle event also took home a full-option T-Maxx donated by Dynamite. Here's how it all went down.



The RC exhibitions took place during the intermissions of three shows. This meant that the contestants were able to strut their stuff in front of three different audiences and got to watch three Monster Jam events as well. Hardcore Racing and Airborne Hobbies set up displays on the track and in the main lobby and introduced the hobby to thousands of monster-truck fans.

The RC exhibitions each lasted about 10 minutes. One round of racing took place during the first show, and a second round of racing was run during the second show. Jeff Bercaw took the win in the first round; David Young claimed victory in the second.

The organizers decided to award the full-option Dynamite truck to the racer who caught the most air during the exhibition. During the final show on Saturday evening, a wooden launch ramp was set up so the racers could give the spectators some big-air action; the winner would take home the Full Metal Maxx. David Young took the win in the freestyle contest with his crowd-pleasing T-Maxx covered by a Pro-Line Peterbilt Big Rig body. Congratulations, David!

First-round champ Jeff Bercaw (left) and second-round winner and freestyle champ David Young. These guys had a blast racing each other during the heat races.

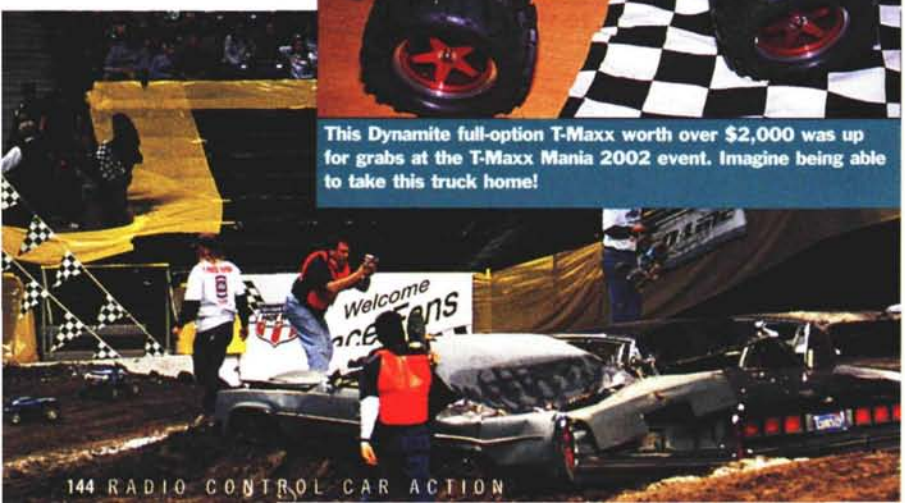
PHOTOS BY GEORGE M. GONZALEZ

If there had been a concours event, this truck would have won, hands-down. Check out the detail on this camouflaged creation.

The trucks lined up and revved their engines right before they raced onto the arena floor like a bunch of buzzing bees.

Jeff of Airborne Hobbies gets an autograph for his son. Many of the contestants' trucks were detailed exactly the same as the real trucks, and the modelers welcomed the rare opportunity to have their truck bodies autographed.

This Dynamite full-option T-Maxx worth over $2,000 was up for grabs at the T-Maxx Mania 2002 event. Imagine being able to take this truck home!

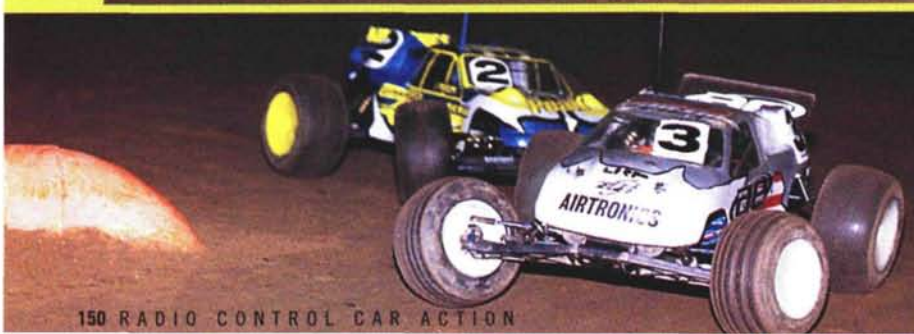


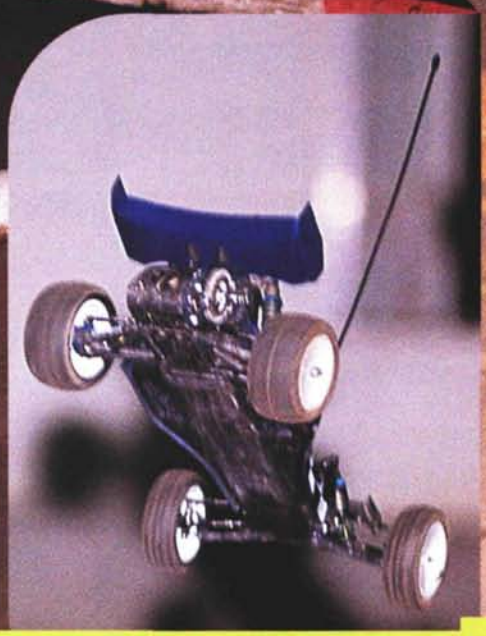
WRAPUP

Thousands of monster-truck fans were exposed to RC racing during the two-day Monster Mania 2002 event, and the contestants had fun bombing their trucks around the arena's dirt track. We thank the good people of Airborne Hobbies for their hard work and dedication and the sponsors for their generous support. We'd also like to congratulate T-Maxx Mania 2002 Champion David Young. Have fun racing that devilish-looking Dynamite T-Maxx! ■

by George M. Gonzalez

NORRCA OFF-ROAD WINTER NATIONALS





Racing for Big Bucks

Capital City RC Center, in the old Hobby Warehouse building in Sacramento, CA, has brought RC off-road racing back to that city, and its new owners are dedicated to making it the premier RC racing facility in Northern California. In less than two years, the Center has hosted two major racing events, including the recent First Annual NORCCA Off-Road Winter Nationals.

In an effort to kick-start this inaugural race, the hosts decided to return the sign-up fees to racers by offering a cash purse of $420 to the winners in the Open and Expert classes. They also raffled off hundreds of dollars worth of RC products, including a brand-new Team Losi Triple-XT Matt Francis Edition truck kit. This was truly the first race that everyone won just by showing up. Capital City RC Center is the home track of Team Trinity/Team Losi factory driver Matt Francis, so you know he was there! And to mix things up with the local hotshots, Matt also brought along a few of his teammates. Let's get down to business.

RACE FOR CASH AND A NEW TRUCK

The NORRCA Off-Road Winter Nats was the first event (that I've been to, anyway) in which most of the entry-fee proceeds were returned to the first-place winners of the Expert and Open classes. Team Trinity/Team Losi driver Matt Francis picked up two checks for winning the Open Buggy and Truck classes, while Ray Barrero earned a pair of checks for winning the Expert Stock Buggy and Truck classes.

During the event, many door prizes were given away, including tires, wheels, bodies, ESCs, radios and RC apparel. Almost everyone won a door prize, and all the contestants got NORRCA Off-Road Winter Nats T-shirts. The grand prize was a brand-new Matt Francis Edition Triple-XT in a box autographed by Matt. Scott Lynch of Sacramento was the lucky winner of the Triple-XT MFE.

Scott Lynch had a great weekend at the Winter Nats. Not only did he win the Novice A-main, but he also won the grand-prize raffle—a brand-new Team Losi Triple-XT Matt Francis Edition truck.

RC THERAPY

Bill Arbogast

Carl Madsen

Fourteen-year-old Carl "The Ace" Madsen started racing motocross at the ripe old age of 4. Within a few years, his talents led him to sponsorships from Pro Circuit, Kawasaki and ERC Fuel (to name just a few) in the Junior AMA Motocross division. Carl had a promising career in motocross until recently, when he crashed his bike and injured his spine. Carl's injuries ended his motocross career, but he isn't done with dirt. When The Ace saw a Capital City RC Center television commercial that showed off-road buggies and trucks tearing up the dirt track under complete driver control, he knew it was the hobby for him. Carl now enjoys racing and wrenching on his RC cars, and he brings his moto-instincts to off-road RC. He'll soon undergo a procedure to help his injury, and if all goes well, Carl plans to donate his tricked-out wheelchair to the Shriners Hospital, where he was first treated.

Bill Arbogast also subscribes to "RC therapy" to keep him fresh while he recovers from a motorcycle injury. Bill is a professional AMA dirt track and motocross racer who injured his knee and took the season off to recover. Bill says RC delivers the thrill he gets from dirt-bike racing, without the worry that he'll need to leave the track in an ambulance.

THE TRACK

Capital City RC Center has been open for about two years, but it has already earned a reputation as a customer-oriented RC raceway and hobby shop. The track has a fleet of rental cars, so people can come in and try the hobby without having to invest in an RC package. Capital City even has an RC car-repair shop for those who may not own the tools they need—or have the aptitude—to fix their vehicles. The massive indoor off-road track covers approximately 7,000 square feet, and the track crew always lays down a fun and challenging course. A large pit area with AC power can easily accommodate more than 80 racers. Plans are to expand the shop and perhaps add an indoor on-road track within the next year. If you're in the Sacramento area, stop by; or visit them online at capitalcityrc.com.

NORRCA Off-Road Winter Nationals Results

OPEN MOD TRUCK—$420 purse

FIN.	QUAL.	DRIVER	CHASSIS	MOTOR	BATTERY	ESC	RADIO	TIRES	BODY
1	1	Matt Francis	Losi Triple-XT MFE	Trinity P94	Trinity	LRP	Airtronics M8	Losi	Losi Fury
2	6	Jimmy Babcock	Losi Triple-XT	Team Orion	Team Orion	INS*	INS	INS	INS
3	3	Philip Atondo	Losi Triple-XT MFE	Peak	Team Orion	Novak	Airtronics M8	Losi	Losi Fury
4	2	Travis Amezcua	Losi Triple-XT MFE	Trinity P94	Trinity	Novak C2	Airtronics M8	Losi	Losi Fury

OPEN MOD BUGGY—$420 purse

1	1	Matt Francis	Losi Triple-X	Trinity P94	Trinity	LRP Quantum	Airtronics M8	Losi	Losi
2	2	Travis Amezcua	Losi Triple-X	Peak	Team Orion	Novak C2	Airtronics M8	Losi	Losi
3	3	Lloyd Dassonville	Associated B3	Reedy	Reedy	LRP Quantum	Airtronics M8	Pro-Line	Associated
4	4	Philip Atondo	Losi Triple-X	Trinity P94	Trinity	Novak C2	Airtronics M8	Losi	Losi

EXPERT STOCK BUGGY—$420 purse

1	1	Ray Barrero	Losi Triple-X	Trinity P2K	Pro Match	LRP 7.1	Airtronics M8	Losi	Losi
2	3	David Goss	Losi Triple-X	Trinity P2K	Pro Match	LRP Quantum	Airtronics M8	Losi	Losi
3	6	John Scott	INS	INS	INS	INS	INS	INS	INS
4	7	Joe Pillars	INS	INS	INS	INS	INS	INS	INS

EXPERT STOCK TRUCK—$420 purse

1	1	Ray Barrero	Losi Triple-XT MFE	Trinity P2K	Pro Match	LRP 7.1	Airtronics M8	Losi	Losi
2	2	Shaun Dunlap	Losi Triple-XT MFE	Peak Spitfire	Peak	Novak C2	Hitec Lynx 3D	Losi	Losi
3	4	Nathan Lavery	Losi Triple-XT	Trinity P2K	Pro Match	Novak C2	Airtronics M8	Pro-Line	Losi
4	3	Matt Burdick	Associated T3	Reedy Rage	Reedy	LRP Quantum	Airtronics M8	Pro-Line	Pro-Line

SPORTSMAN STOCK BUGGY

1	2	Judd Jacober	Losi Triple–X	Trinity P2K	Team Orion	Novak C2	Airtronics M8	Losi	Pro-Line
2	3	Don Dickinson	Losi Triple-XKE	Trinity P2K	Trinity	Novak C2	Hitec L3D	Losi	Losi
3	4	Joel Taylor	Associated B3	Reedy MVP	Reedy	LRP 7.1	Airtronics CX2P	Pro-Line	Pro-Line
4	7	Carl Madsen	Losi Triple-X	Trinity P2K	Team Orion	Novak C2	Airtronics M8	Losi	Losi

SPORTSMAN STOCK TRUCK

1	1	Carl Madsen	Losi Triple-XT MFE	Trinity P2K	Team Orion	Novak C2	Airtronics M8	Losi	Losi
2	3	Stan Lacey	Losi Triple-XT MFE	Trinity P2K	SMC	Novak C2	Airtronics M8	Pro-Line	Losi
3	2	Roger Williams	Losi Triple-XT MFE	Trinity P2K	Reedy	Novak C2	Airtronics M8	Pro-Line	Losi
4	5	Judd Jacober	Losi Triple-XT	Trinity P2K	Team Orion	Novak C2	Airtronics M8	Losi	Losi

NOVICE

1	2	Scott Lynch	Associated FT T3	Bonzai	Team Orion	Novak C2	Airtronics M8	Pro-Line	Pro-Line
2	3	James Hand	Associated FT B3	Trinity P2K	Reedy	Novak C2	Airtronics Blazer	Pro-Line	Pro-Line
3	4	Josh Mathews	Losi Double-X	Trinity P2K	Reedy	Tekin	JR XR2	Losi	Losi
4	1	Dillon Holt	Associated FT T3	Trinity P2K	Trinity	Novak Dually	Hitec L3D	Pro-Line	Pro-Line

INS* = information not supplied by driver

WRAPPING IT UP

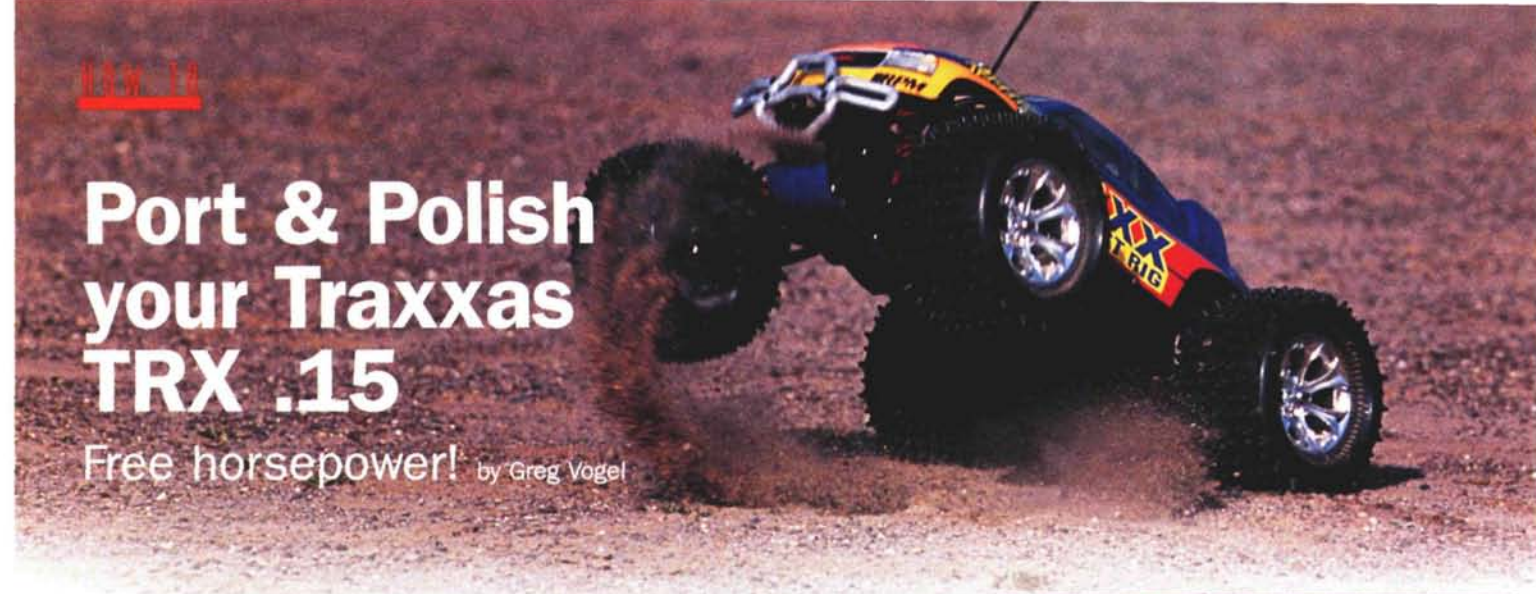
The NORRCA Off-Road Winter Nats went off without a glitch, and it was fun to compete or just to watch. Everyone left with cool prizes and great memories.

Matt Francis put on an exhibition of speed and talent that excited the spectators and racers, and he always had the time to help a driver with a problem and was glad to sign a kid's T-shirt. Matt is a true RC spokesman and an example to all. Credit also goes to the staff at Capital City RC; these guys and gals truly put the customer first and offer a lot to their patrons. They also know how to manage big races—with an emphasis on fun. I only wish there were more facilities like this one. ■

Port & Polish your Traxxas TRX .15

Free horsepower!

by Greg Vogel



"Porting and polishing" has long been part of hot-rod lingo, and even the most novice engine buffs know that massaging an engine's internal components to maximize the flow of gases through the engine frees up a healthy dose of horsepower.

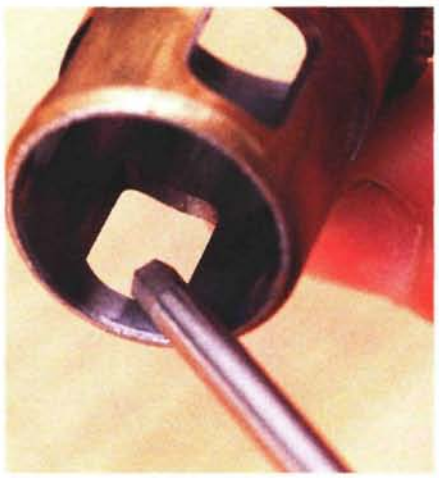
The same sort of massaging can benefit RC engines, but it has always been a sketchy topic; no one really knows the effects of a modification to the piston or sleeve until it's tried, and who wants to experiment with their expensive RC stuff? I took it upon myself to find some answers with a Traxxas TRX .15 engine as the guinea pig. I've been able to nail down a modification process that's easy, doesn't affect reliability and helps this already-powerful mill deliver even more oomph.

YOU'LL NEED

- **Rotary tool**
- **Fine-grinding bit**
  Use a bit that is small enough for you to work in the tight corners of the ports.
- **Polishing wheel and polishing compound**
  A bench grinder with a polishing wheel works best, but you can also use a polishing wheel on your rotary tool.
- **Masking tape**
- **Permanent marker**
- **Gloves, safety glasses and an air-filter mask**
  Metal particles are going to fly, so protect your hands, eyes and lungs with these safety devices.

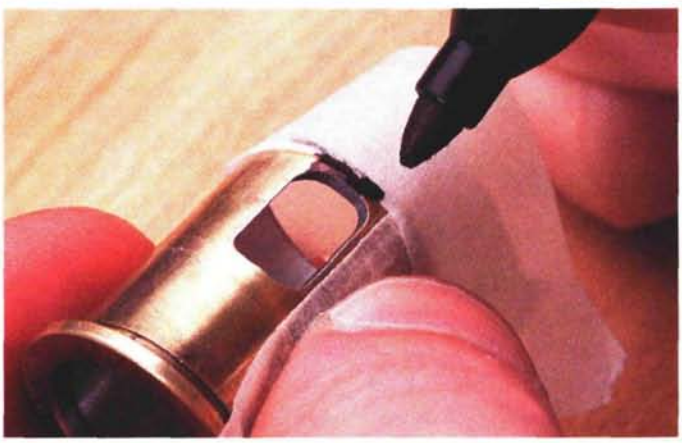
Step 1. Remove the sleeve.

I'm sure you know how to do this. If you don't, you aren't ready for the mods described in this article. Make note of the position of the exhaust port. When you remove the sleeve we'll use this port as a reference point to locate the other ports.



Step 2. Note port direction.

Look at the inside of the sleeve and note the bevel on the upper sides of the ports. You'll modify the sleeve on the outside by grinding a similar bevel on the "square" edges of the port.



Step 3. Mark the ports.

When looking directly at the exhaust port, notice the two intake ports: one on each side of the sleeve. You'll grind the sides of the ports as detailed in the steps to come. Begin by placing a piece of tape 1mm away from the edges, both on the bottom and side, and use the permanent marker to color the exposed 1mm gap.

WARNING! If you try any of the modifications shown in this article, you will void any manufacturer's warranty. *RC Car Action* is not responsible if you goof up your engine or are unhappy with the results. We suggest that you try the modifications on a sleeve that is due for replacement soon, rather than experimenting on fresh parts.

Step 4. Get grinding.

With the fine-cutting/-grinding bit installed, grind away the black line. Hold the tool at an angle that matches the angle you noted inside the sleeve. Don't push hard with the grinding tool, as the sleeve material is soft. Only remove a little material at a time; you can always take more off, but you can't add it back on.

When completed, your ports should look like the one above marked "After."

Step 5. Polish the new edges.

The raw edges of the new ports will prevent gasses from flowing as smoothly as a finely finished surface would. Polish the new edges by placing the sleeve against a polishing wheel. With a fine buffing compound on the polishing wheel, slowly polish the ground areas smooth.

Step 6. Finished!

Reinstall the sleeve and head. You can leave the stock head shim in place, but I found that the modified engine runs better with the shim removed, which increases compression. I also swapped the electric starter for a pull-starter (find out why in the sidebar, "Starting and tuning").

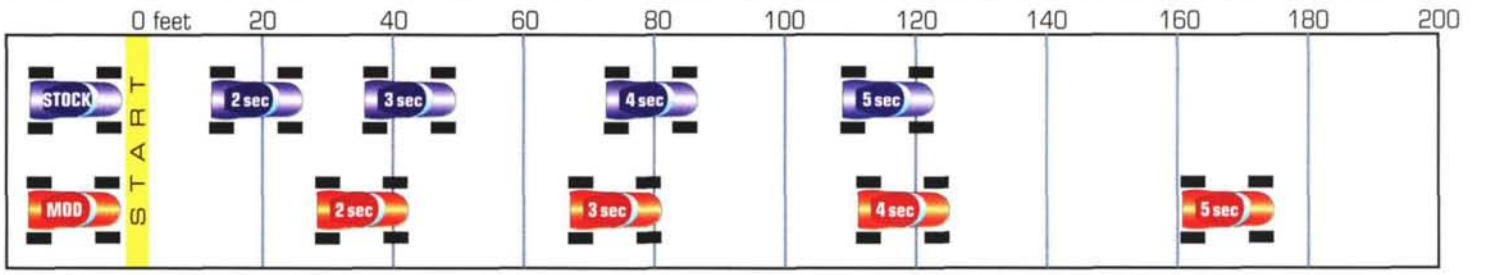
Starting and tuning

The engine becomes more finicky to start after this modification. Now, more fuel flows into the combustion chamber, and this can cause hydra-lock if the cylinder loads up with fuel before the glow plug ignites it. If you use an electric starter, you can't feel the engine beginning to lock and could potentially damage the starter's gear train. If you use a pull-starter, you'll be able to feel the hydra-lock as resistance on the starter cord, so you'll know to remove the glow plug to release the fuel. Bump up the idle on your radio just a tad, give the starter a few pulls, and the engine should start just fine.

You'll need to retune the engine now to get maximum speed. Don't tune it off the start! Make certain that the engine is warmed up to running temperature before you make any adjustments. Because of this modification, the engine is also more sensitive to needle adjustments and requires a delicate touch for fine-tuning.

BEHIND THE WHEEL— and the radar

After modification, the engine has more low-end snap; there's enough to make a T-Maxx pull the front wheels off the ground with ease, and there's more pull at high rpm as well. Take a look at the numbers to see where the gains are. The "stock" graph represents a stock T-Maxx with a fresh, broken-in engine. The "mod" graph shows the acceleration for a stock T-Maxx with a modified sleeve—pretty impressive!



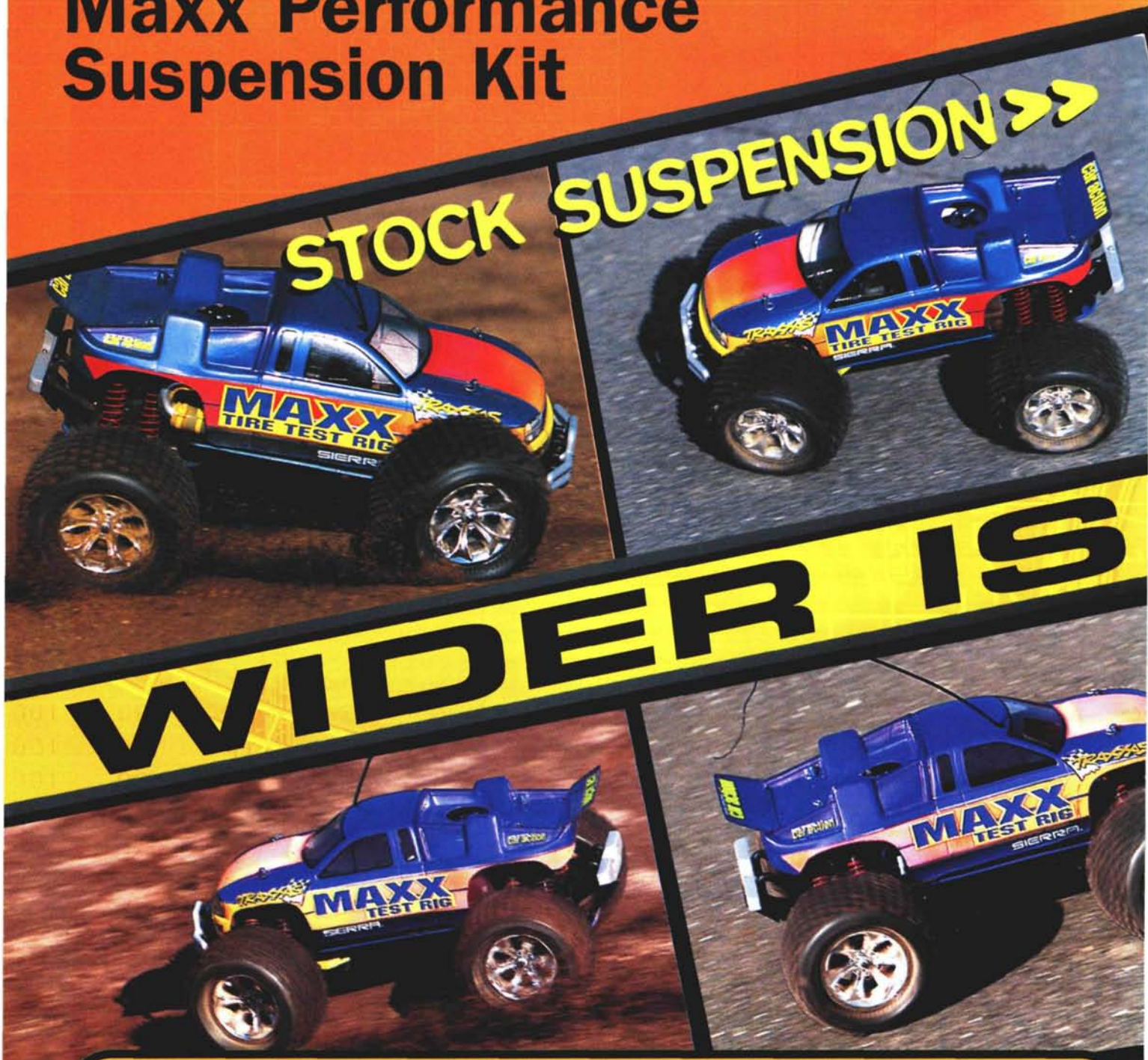
This graph illustrates the distance our test T-Maxx traveled in 5 seconds with an unmodified engine (blue "stock" truck) versus the same run made after the sleeve was modified (red "mod" truck). Not bad for a little grinding! ■

SOURCE GUIDE

TRAXXAS CORP. (972) 613-3300; traxxas.com.

HOW TO

Install Pro-Line's Maxx Performance Suspension Kit



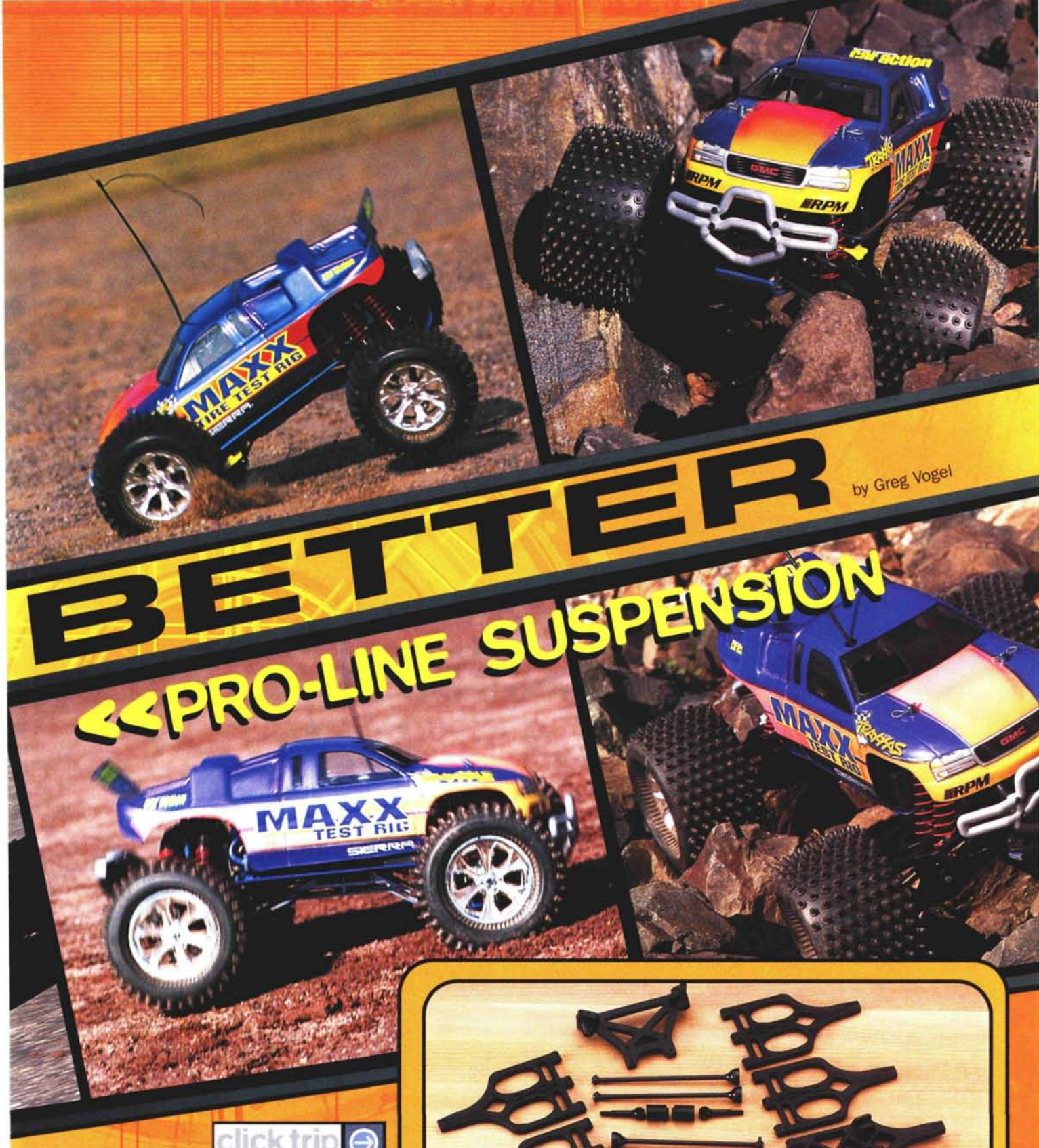
The Traxxas Maxx trucks handle very well—at least when judged by monster truck standards. But as any Maxx racer who has also raced purpose-built competition vehicles will tell you, even the best-handling monster truck doesn't handle very well when it comes to logging laps on a track. The Maxx is king of the hill in climbing and crushing, but it likes to hit the three-wheel-motion in tight corners and has more body roll than Jiminy Glick.

Those traits don't hamper the fun of going around a track, but if you think winning is the most fun, then Pro-Line has a suspension kit for you. Everything you'll need to transform the Maxx's cushy car-crushing suspension to a wider, lower, more progressive—and aggressive—race setup is included. It's easy to install (we'll show you), and it really does make your Maxx move faster around a track (we'll show you that, too).

BETTER

by Greg Vogel

<<PRO-LINE SUSPENSION

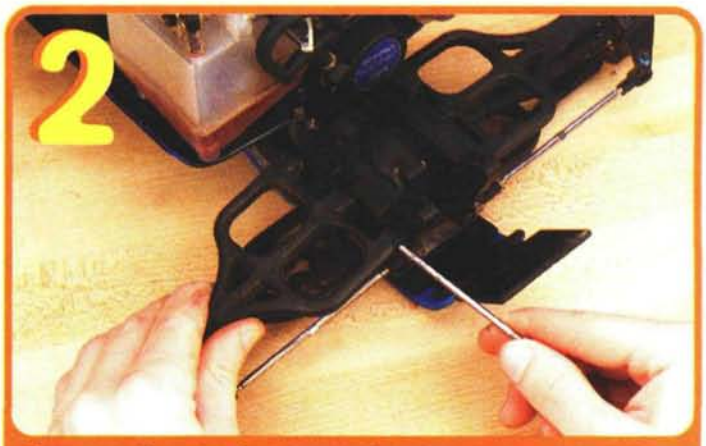


click trip
RCCARACTION.COM
DOWNLOAD VIDEO OF THE PRO-LINE CONVERTED T-MAXX IN ACTION!

Here's the full Pro-Line kit spread out. As you can see, it has everything you'll need for the swap. We opted to install the optional MIP CVDs that are also displayed in the picture.

1 For starters ...

We'll need to gain access to the suspension components. Start by removing the wheels, shocks and body mounts. You'll also need to remove the front and rear bumper, but do so by unscrewing the bumper bracket from the bulkhead. Remove the bumper brackets to gain access to the upper hinge pins; this is a good time to detach the steering tie-rod from the steering knuckle and rear knuckle.



2 Remove the stock suspension

Start with the shock towers, which are held to the bulkheads with four screws; simply remove the screws and the shock tower. At this point, strip the truck of its original suspension arms by unscrewing the screw-type hinge pins. Take off the upper and lower screw pins and pull the suspension assembly out of the truck.

CVDs or telescoping axles?

The Pro-Line kit extends the suspension by ½ inch on each side. This means that the slider axles slide out ½ inch, and that has some Maxxers concerned. Here's the real deal. If you run the stock engine with only minor modifications, such as an aftermarket tuned pipe, there's nothing to worry about; the stock axles will hold up just fine. But if you have installed an aftermarket .15 engine that has more power, then you should seriously consider buying the MIP CVDs, as the stock axles will probably twist under the load. If you decide to use a .21 conversion, do yourself a favor and pick up the optional CVDs from the start.

3 Remove the knuckles

The steering knuckles and rear knuckles with the bearings, axles and pivot balls need to be transferred to the new Pro-Line arms. At one end of the knuckle is a large hex bolt; this is the ball retainer, and it doesn't need to be removed. Look deeper inside the knuckle, and you'll notice the pivot ball, which can be unscrewed with a 2.5mm Allen wrench. Keep track of which knuckle came from which corner of the truck; they are identical, but it's a good idea to keep them in their original locations so the male and female axle halves continue to wear in their original pairings. (If you're upgrading to MIP CVDs, you don't have to worry about that.) It's also a good idea to make a note of how many threads of the pillow-ball screw are exposed from the end of the arm. You'll use that reference when you reinstall the pillow balls in their new arms.

Transfer the knuckles

Install the steering knuckles and rear knuckles on the new Pro-Line arms. Remember the note you made about the number of exposed threads? When you screw the pillow balls into place, leave the same number of threads exposed. This will get you very close to your original camber settings.

5 Tie-rod swap

Before you reinstall the suspension, you'll need to swap out the steering tie rods and rear toe links. Remove them from the steering bar in the front and the bulkheads in the rear. You also need to transfer the plastic ball ends to the new tie rods supplied in the Pro-Line kit. Note that two of the tie rods are longer than the other two; the long rods go in the rear and the shorties go up front. You will also want to remember to install the outer rod on the bottom of the knuckles, or you will wind up with a lot of bump-steer.

Alignment

Like on a full-size car, when you alter the suspension you should have the suspension, and steering aligned. The least expensive way to set camber is with a plastic camber gauge such as the one from RPM. If you have to have the primo gear, Hudy offers a full setup station to precisely tune your truck. Set both the front and rear camber to either 0 or -1 degree of camber. If you counted threads, as suggested in step 4, the settings should already be pretty close.

Tuning the Pro-Line Maxx Suspension

Given the 1-inch increase in track width with the stock offset wheels and the lowered ride height, you may wonder if the addition of the Pro-Line kit requires tuning the shocks, such as spring and oil changes. The new geometry actually improves the stock spring and shock-damping rates, and the three locations on top and on the bottom allow you to fine-tune the setup for your needs. We left the shocks in the center of the arms and towers so that we'd have the option of "standing up" or "laying down" the shocks. The in-the-middle setup seemed best, so we left it alone.

6 Install the new suspension setup

It's time to rehinge the suspension. Slide the drive axles together first, as it's impossible to slide them together after the suspension arms have been hinged into place. Position the upper arm and slide the screw pin in, and follow with the lower arm and pin; screw the pins in until they are snug. Now bolt the outer ball ends onto the tie rods to the knuckles.

I opted to swap the kit-included screw pins for E-clip-type titanium hinge pins from Traxxas. This is something you might want to consider, as the titanium pins are much stronger and won't bend in a hard crash.

7 Finish the assembly

Pro-Line's new shock tower is bolted right onto the bulkheads in place of the stock towers. After you've installed the new towers, reinstall all the parts you took off in step 1: shocks, bumpers and wheels.

Look to see if the body-mount screws hit the shocks; older kits has this problem. Pro-Line includes smaller, button-head screws in the current kits.

How Much Quicker?

The "Pro-Line-ified" T-Maxx felt as if was faster around the pipes, but we wanted to know just how many tenths we were shaving. To find out, we cranked up a stock T-Maxx and put in a few tanks to determine what kind of times the truck could consistently turn in. We wound up with a best lap of 19.8 seconds, and an average of 20 seconds and change.

Then we pitted for a suspension swap. Camber settings were left unchanged, and the shocks' spring rates and fluid viscosity were also untouched. After a few more tanks, we had our results: the Pro-Line setup was about 1 to 2 seconds faster per lap. That's an advantage of about 1½ to 3½ laps in a 10-minute race!

PERFORMANCE

OFF-ROAD

Turning. The improvements of the Pro-Line kit are most noticeable here. During turns with the stock suspension, the truck tended to lean enough to cause a 3-wheel motion throughout the turn, and that often caused the truck to flip or hook. That is eliminated with the kit; the truck still leans with the stock shock setup, but its wheels never leave the ground, and that keeps you in control of the truck.

The stock arms and shock tower are below the Pro-Line parts. This shows you how much longer the Pro-Line arms are.

Jumping. The Maxx has always been an excellent jump truck; its landings are always stable and controllable, but with the new kit, its stability has increased. Setting up for a jump isn't as critical; if you're a little off on the entry, the wider suspension keeps the truck manageable off the ramp. Don't worry about not landing on all fours; the truck gathers its composure very quickly and is a lot less likely to flip or spin out.

Climbing. Over rocky uphill climbs, the wider stance of the Maxx's Pro-Line Performance Suspension makes it much more sure-footed. When the truck went over bumps during the climb, its path was straighter than it had been with the narrower suspension.

ON-ROAD

Turning. On the pavement, too, the truck exhibited less 3-wheel motion and steered more predictably.

FINAL THOUGHTS

Pro-Line is currently working on an instruction sheet to help builders make the swap. It will include measurements of the rods and pivot balls, and it will probably be available by the time you read this.

Pro-Line's Maxx Performance Suspension Kit definitely improves the driveability of an already great-handling truck. But it's not only an improvement in handling, but also in durability. With the kit's alterations, the truck's suspension arms and shock towers are more rigid and can take a lot of abuse. The titanium turnbuckles are much stronger than the stock steel units, and the optional MIP CVDs are not subject to twisting as the stock sliders are.

From a lot of different angles, the Pro-Line Maxx Suspension upgrade is well worth the money. ■

SOURCE GUIDE

HUDY SPECIAL PRODUCTS; distributed by Serpent Inc. USA (305) 639-9665; serpent-usa.com; hudy.net.

MIP (626) 339-9007; miponline.com.

PRO-LINE (909) 849-9781; pro-lineracing.com.

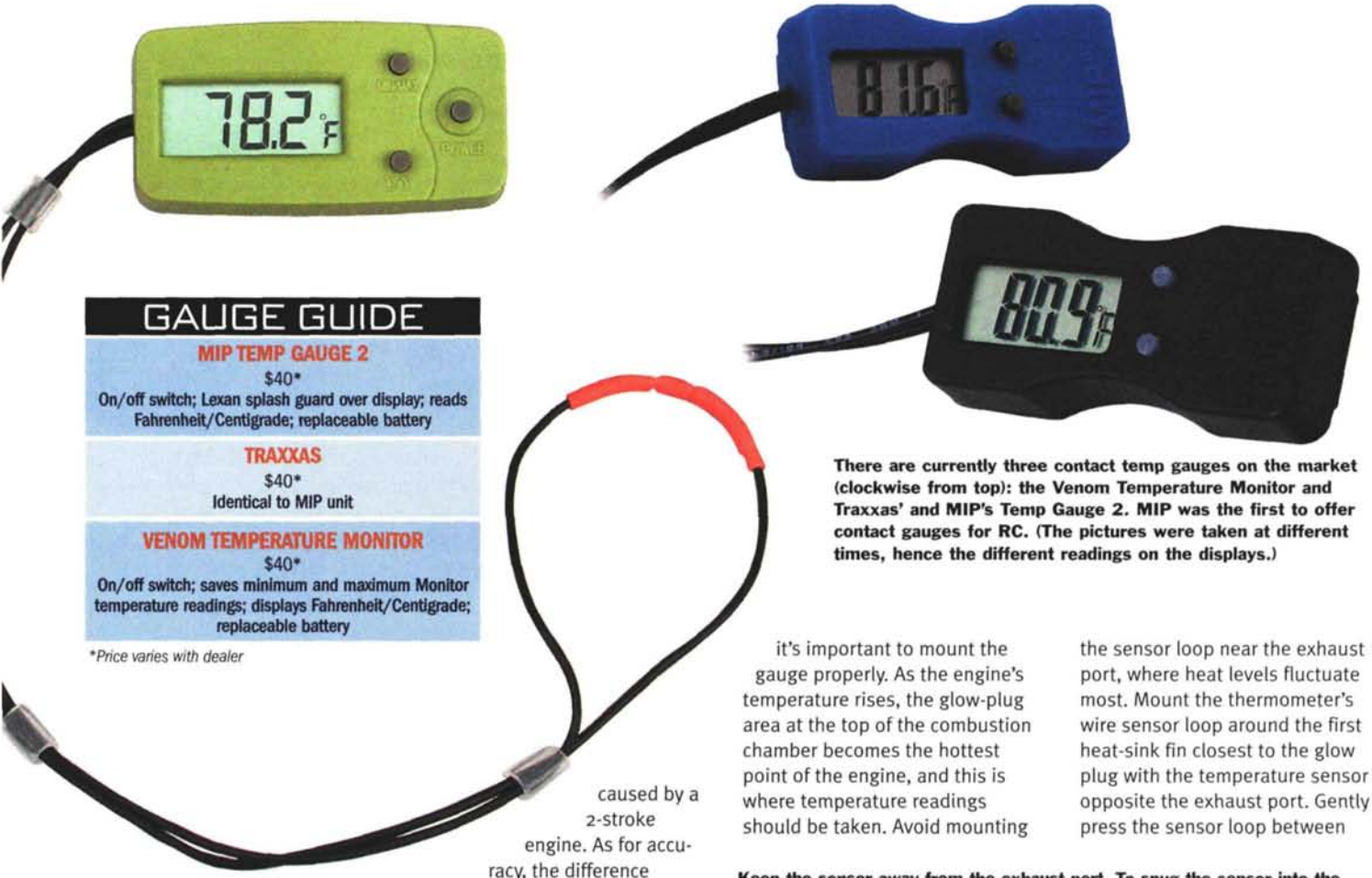
RPM (909) 393-0366; rpmrcproducts.com.

TRAXXAS (888) 872-9972; traxxas.com.

BY STEPHEN BESS

Engine Temping Tips

Two-stroke engines require a certain amount of heat to perform well, but as mom always says, "Everything in moderation!"—and that surely applies to RC engines. Keeping a close eye on your engine's temperature is vitally important to its reliability and performance; excessive heat may be caused by an air leak, drive-train binding, or running too lean; an over-cooled engine may be running too rich or have a carburetion problem. Either way, you need a reliable temperature gauge to determine whether your engine is getting too hot or is not hot enough. An onboard contact thermometer (such as MIP's Temp Gauge 2 and its Traxxas-branded clone, or the Venom Temperature Monitor) is an ideal way to keep tabs on engine heating without investing in an expensive infrared temp gun. Check out the following info on the best way to use a contact thermometer.



There are currently three contact temp gauges on the market (clockwise from top): the Venom Temperature Monitor and Traxxas' and MIP's Temp Gauge 2. MIP was the first to offer contact gauges for RC. (The pictures were taken at different times, hence the different readings on the displays.)

GAUGE GUIDE

MIP TEMP GAUGE 2
$40*
On/off switch; Lexan splash guard over display; reads Fahrenheit/Centigrade; replaceable battery

TRAXXAS
$40*
Identical to MIP unit

VENOM TEMPERATURE MONITOR
$40*
On/off switch; saves minimum and maximum Monitor temperature readings; displays Fahrenheit/Centigrade; replaceable battery

**Price varies with dealer*

HOW THEY WORK

I contacted Eustace Moore of Moore's Ideal Products (MIP) for a quick overview of how a contact thermometer works. The key component is a glass temperature sensor called a "thermistor" that absorbs the engine's heat and relays it to the electronic "brain" in the gauge's plastic case where the reading is displayed on an LCD screen. These little sensors are surprisingly durable; although the glass sensor should not be crushed (by tightening your engine's heat-sink head against it, for instance), it can easily withstand the vibrations caused by a 2-stroke engine. As for accuracy, the difference between a contact gauge reading and the temperature indicated by an infrared sensor is negligible. According to MIP, temperature reading variances between contact thermometers and infrared thermometers are as small as 1 percent when temps are taken at exactly the same point. If your contact gauge provides a different reading from that of an infrared unit, what you're seeing probably has much more to do with positions of the sensors than with the accuracy of the sensors themselves.

MOUNTING

Contact temperature gauges make it easy to check temps, but it's important to mount the gauge properly. As the engine's temperature rises, the glow-plug area at the top of the combustion chamber becomes the hottest point of the engine, and this is where temperature readings should be taken. Avoid mounting the sensor loop near the exhaust port, where heat levels fluctuate most. Mount the thermometer's wire sensor loop around the first heat-sink fin closest to the glow plug with the temperature sensor opposite the exhaust port. Gently press the sensor loop between

Keep the sensor away from the exhaust port. To snug the sensor into the heat-sink head, just tighten up the sensor loop, lasso-style.

Tune your engine for ideal performance, not an ideal temperature!

the fins; don't crush it between the heat-sink head and the engine block.

That takes care of the sensor; where are you going to mount the display? You can servo-tape it anywhere that's convenient, but make sure that the sensor wire isn't dangerously close to any moving parts (such as the spur gear). Avoid cinching the unit down with a zip-tie; squeezing the case can damage the LCD display.

GAUGING PERFORMANCE

Now that your onboard temp gauge is dialed in, how will you use it to improve performance? If you're thinking, "Now I'll tune my engine to run at exactly 250 degrees," you have the concept of temperature-tuning backwards. Your objective is to tune your engine to best performance, note the temperature readings and then use them as a barometer for future runs. If your engine seems to operate best at 265 degrees, make a note in your tuning notebook (you do keep track of your setups in a notebook, right?) and tune the engine to operate close to that temperature the next time you run your vehicle. But don't get stuck on 265 degrees as the "perfect" temperature; variables in your fuel's nitro content (and quality), ambient temperature and humidity can affect the temperature at which your engine runs best. Just tune your engine to run its best based on throttle feel, how much smoke the engine produces and its exhaust note, and continue to make notes. You'll soon build a library of operating temperatures for various combinations of fuel types and operating conditions. Armed with this knowledge, you'll be able to react appropriately when your engine temp is unusually high or low for a given set of operating conditions. That's the real benefit of a temperature gauge. ■

TECH Q&A

Q I'm having trouble keeping my T-Maxx running past ½ tank of fuel. I have a nearly stock T-Maxx with a stock fuel tank, a Novarossi CX-12 pull-start engine, a Kyosho fuel filter mounted on the front shock tower and Aerotrend fuel tubing, and I run 20-percent Trinity Monster Horsepower fuel. I've changed the glow plug, cleaned the air filter and tested the fuel tank for leaks. I've even replaced all the fuel tubing on the truck, yet it continues to flame out once the tank goes past ½ full. The carb is tuned properly, and the running temperatures are in the mid-200-degrees F range, so I know I'm not running the engine too lean. What's the deal? [email]
Robert Grant

A *Robert, your T-Maxx's problem isn't uncommon. First, let's talk a little about 2-stroke engines and how they operate. A 2-stroke engine relies on the suction created by an engine's compression, as well as exhaust pressure, to draw fuel into the carburetor. Eliminate the suction pressure or the exhaust pressure that pressurizes the fuel tank, and your 2-stroke engine won't have the ability to draw enough fuel into the carb to keep itself running. Basically, these pressures allow the engine to "drink" the fuel through the fuel lines in the same way you drink a soda through a plastic straw.*

Now to your problem. Your engine dies around ½ tank, and you're running a fuel filter attached to the front shock tower? To mount a filter on the front shock tower of a T-Maxx, the fuel tubing would have to be at least twice the length for normal operation! Running the tubing from the tank all the way up to the front tower, into the filter, and all the way back along the length of the chassis to the carb causes the suctioning pressure to be exponentially reduced--thus causing fuel starvation at ½ tank. One of the reasons that your engine runs until ½ full is that gravity causes a full tank to empty itself because of the fuel's weight. Also, there's less empty volume inside the tank to pressurize when the tank is full, so even weak pressure will easily force fuel into the carb. But once past ½ tank, the pressure is gone, and the engine starves.

Think of it this way: you can drink a soda through a 10-inch-long straw quite easily, but how difficult would it be to drain the can through a 6-foot-long straw? Chances are, the liquid will never reach your lips (and you'll look like a freak). Reduce the fuel tubing to a maximum 8-inch length from the tank to the carb, and find a better place to mount the filter. Keep the pressure line from the pipe to the tank equally short, and your engine will run until the last drop of fuel. Problem solved!

NEW FOR NITRO

MEGATECH
PT 2000XS .21

The 2000XB is Megatech's newest .21 buggy engine. That means it's designed for big low-end punch--exactly the sort of power that heavy, ⅛-scale buggies need for the constant acceleration and braking seen in off-road racing. The XS has a 7-port, chrome-plated sleeve, an 11-fin head with a separate glow-plug "button" and a three-needle slide carb. There are also some neat internal features that you can see in the June 2002 issue of *RC Nitro* (on sale now; go get yours), which has a complete dyno test of the PT 2000XS. In case you're wondering, it cranked out 1.73hp at 22,700rpm, with a practical rpm range of 2,500 to 28,200.
Megatech PT 2000XS .21--item no. MTCPT-05; $270.

TRINITY
Monster Horsepower Nitro Starter Kit

Trinity offers two versions of the starter kit. One version comes with the items shown here (500ml fuel bottle, glow-starter with wall charger, 4-way wrench, Nitro Blast spray cleaner and one quart of 20-percent Monster Horsepower fuel), or you can opt for the T-Maxx version, which adds a 1500mAh battery (to power the Maxx's EZ-Start unit) and a bottle of after-run oil. The Maxx kit is also great for the EZ-Start-equipped Traxxas Nitro Stampede and Nitro Rustler, as well as Kyosho's QRC vehicles and MegaForce with Touch-Starters.
Trinity Monster Horsepower Starter Kit--item no. RC8110; $45.
Monster Horsepower Starter Kit for Traxxas T-Maxx--RC8111; $50.

SOURCE GUIDE

MIP (626) 339-9007; miponline.com.
TRINITY PRODUCTS INC. (732) 635-1600; teamtrinity.com.

CONTACT THE PISTON POWER SOURCE
Send your "Piston Power" questions and comments to Stephen Bess, stephenb@airage.com.

BY KEVIN HETMAN

The Big Dig

I saw these awesome construction vehicles when I visited the Shizuoka Hobby Show in Japan last year. I fell in love with them right away, but I was disappointed to hear that they might not be available in the U.S. Luckily for us, Horizon Hobby decided to import them under the Hobby Zone line. Naturally, I was psyched when they were displayed at the 2001 New Model Hobby Show in Chicago. When I finally got my hands on them, I felt like a kid opening the box of a new Tonka toy on Christmas morning–but with the added bonus of RC!

MEGA LOADER

The Mega Loader is a 1/14-scale replica of a full-size front-end loader. A 3-channel radio controls all of its functions: 4-wheel steering, forward and reverse, and a functional bucket that dumps its load when it reaches full extension.

I drove the Mega Loader around to get a feel for how it worked. The steering and throttle sticks require a firm push to operate, and they may be difficult for smaller hands to operate. The steering took some getting used to because it doesn't self-center; if you want the Loader to stop turning left, you have to press the stick to the right (and vice versa). The buttons for the bucket are easy to operate, and it is capable of lifting 4.6 ounces of weight.

MEGA LOADER RTR–HBZ2225; $89.99.

Three construction vehicles are available: the Mega Loader, the Mega Hauler and the Mega Lifter. All three vehicles come out of their boxes 100 percent ready to run. Each includes a 27MHz transmitter, but the controls aren't proportional controls; it's all or nothing. None of them are fast, but their speeds are well matched to the scale of the vehicles and their full-size counterparts.

The realistic weathering and detailing you see in the photos is applied at the factory, and batteries are included (for the vehicles, at least; each transmitter requires a 9v battery). The Hauler and Loader run on 4.8V battery packs, and the Lifter runs on a larger 7.2V battery pack. The packs are rechargeable, and slow chargers are included to juice up the cells. Lights on all of the vehicles let you play after the sun goes down, and unlike other "toy" RC cars, spare parts are available in case repairs are needed.

MEGA HAULE

This 1/24-scale Mega Hauler earthmover is the perfect complement to the Mega Loader. Its large dump-truck bed can carry just about anything and is capable of lifting just over 8 ounces of weight, just in case the four plastic "boulders" included with the truck aren't enough for you. The 3-channel radio lets you control the up-and-down functions of the bed. It also features 2WD, forward and reverse operation and 2-wheel steering. Steering the Hauler is much easier than controlling the Loader because the Hauler points its wheels more quickly and the steering centers itself when you let off the stick. But like the Loader, the sticks on the Hauler's controller required a lot of pressure to move.

MEGA HAULER RTR–HBZ2226; $89.99.

MEGA LIFTER

The 1/6-scale Mega Lifter is slightly larger than the Mega Loader and Mega Hauler, and uses 4-channel control. A scale pallet and barrel are included, and they can be picked up with the multifunctional lifting mechanism, which moves up and down and also tilts forward and backward. It's strong, too; the forks can lift up to 24 ounces 19 inches off the ground. Rear steering and front-wheel drive allow the Lifter to be maneuvered around obstacles, but also makes steering it a bit of a handful. I have to say the Lifter is my favorite of the Hobby Zone Mega-vehicles; lifting pallets and barrels never gets old!

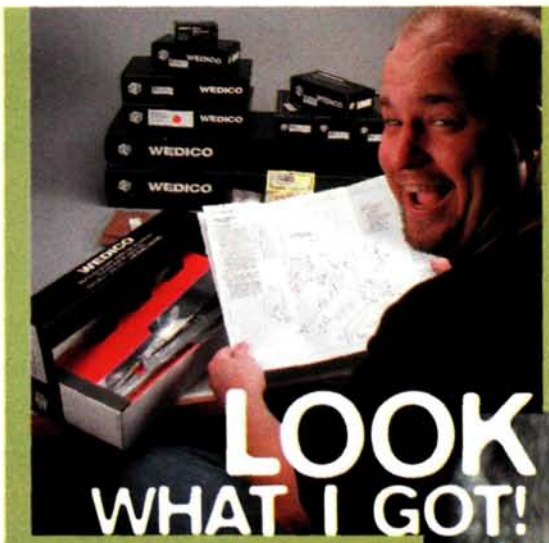
MEGA LIFTER RTR, ITEM NO.–HBZ2122; $99.99.

FINAL THOUGHTS

Hobby Zone's construction vehicles are fun to play with, and as long as you remember that they are inexpensive toys and not "hobby-class" machines, you won't be dissapointed with them. For realism, they're tough to top, and where else are you going to see a forklift, front-loader, and an earthmover dumptruck in RC? (Yes, I know Tamiya has the Mammoth, but it's mucho dinero. And that still leaves the fork lift and loader!)

I'm thinking about opening up the Hobby Zone rigs to see whether I can install some more powerful RC gear. The possibilities may be endless! Anyone for "Project 100mph Forklift"? ■

TALK TRUCK!
Send your 4x4 questions and comments to Kevin Hetmanski
kevinh@airage.com



LOOK WHAT I GOT!

The big pile of boxes from Precision Model Distributors holds all the parts I need to build the beautiful tri-axle tow truck you see in the picture. I've already begun to build the tri-axle masterpiece and will keep you posted on its progress as I go along. This thing is just too cool!

TRICK TRUCK STUFF

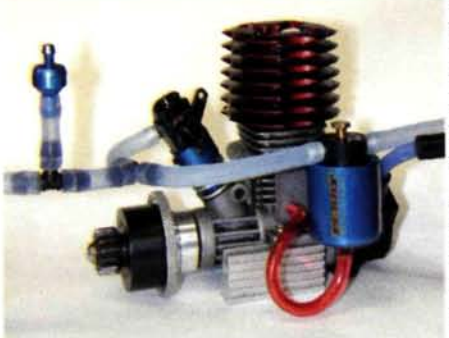
NEW ERA
TXT-1 hop-up parts

New Era was one of the first companies to offer aluminum hop-ups for the Tamiya TXT-1 monster truck. Some of the parts enhance the TXT-1's looks and some add beef. The front and rear bumper supports are direct replacements for the stock plastic units. They are machined of solid aluminum billet and are left in their natural aluminum finish so you can polish them to a brilliant shine. Both sets of bumper supports are machined to accept New Era's optional swaybar. New Era also offers front and rear aluminum bumpers for the truck that very nicely complement the stock and after-market bumper supports.

Bumper support (F/R)—TXT324/TXT325, $19.95. Bumper (F/R)—TXT322/323, $24.95.

SOURCE GUIDE
HOBBY ZONE; distributed by Horizon Hobby, Inc. (800) 338-4639; horizonhobby.com.
NEW ERA MODELS (603) 888-4453; neweramodels.com.
PRECISION MODEL DIST. (602) 655-9888.

Fuel Management system for R/C model cars



The VP-30 pump supplies fuel to the carburetor at a constant pressure, regardless of the engine RPM. Exhaust pressure is not a constant pressure. In normal operation, as the RPM goes down, so does the exhaust pressure. The same is true with the level of fuel in the tank. The pump operates from the positive/negative pulses of the crankcase. Complete instructions come with the system, explaining in detail, how to drill and tap a 6-32 hole in the crankcase. This is a simple operation and does not effect the strength or integrity of the crankcase, in any way. The AVM intercooler, which is CNC machined and computer designed, adds a "ram effect" to the air/fuel mixture, isolates the carburetor and adds extra cooling to the engine. The Bypass system, returns all of the excess fuel back to the vent line on the fuel tank. This allows the carburetor to have "on demand" fuel delivery. "PUMP UP YOUR ENGINE"

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BY BOB HASTINGS

Workshop Essentials

You know the old adage: strong buildings are the result of solid foundations. You'll find that your painting projects are like that, too. The quality of your finished body is the result of the prep that went into it, combined with the techniques and tools used to complete the job. This month, let's look beyond the painting end of things and spotlight some workshop essentials.

PLANNING & PREP

LEGAL PAD. Why do they call it a legal pad? Because it's a crime when people start painting without using a pad and pencil to plan their project. Come up with a design that works on paper and then stick to it. In simpler terms: plan your work, work your plan. (Note: I suppose a sketch pad would work better than a legal pad, but I get free legal pads from the office supply room, and I can't work a funny crime gag into the term "sketch pad.")

SUDS. From the mold-release agent left on the body by the vacu-forming process to the greasy fingerprints of packing clerk no. 7, any number of contaminants could be on the inside of the body just waiting to screw up your paint job. Always wash the interior of the body before you start to paint; all you need is dish soap.

BODY MARKERS. Permanent markers, such as the dual-tip Parma marker, are invaluable tools for designing graphics and creating reference lines on the outside of the body. You can also use them to draw images and accents on the inside of the body before you paint.

COLOR BOOK. Did you ever mess up a beautifully designed paint job because you chose one wrong color? Head over to your local bookstore and hit the art section for a book on color palettes and combinations. I use Color Harmony as a bench-side reference for planning two, three- and four-color combinations.

SCOTCH-BRITE PAD OR STEEL WOOL. Scuffing the inside of the body provides additional tooth for better paint adhesion. Although it makes the body look cloudy before you paint, it doesn't affect the look of the finished color, and the finish will be far more durable. Sandman Abrasives offers flexible wet-sand blocks that are equally effective and follow the body's contour.

MASKING

LIQUID MASK. This is the best solution for broad coverage, intricate color schemes and bleed-free details. The only downside is waiting for the stuff to dry. Master Mask from Hobbico, Parma and Bob Dively are all excellent choices.

MASKING TAPE. It's ideal for creating straight lines and borders. But be sure to burnish the tape well and to apply your first coat of paint lightly around tape's edge; this will seal it properly and prevent the paint from bleeding. Stick to name-brand, top-quality tapes, such as Scotch and 3M.

PRECUT VINYL. It's the fastest way to thought-free, cool designs. Check out the masks from XXX-Main and Parma, in addition to printed designs from Team Orion and decals from the Flatout Group.

CLEANUP

COTTON SWABS. The best tool to remove unwanted paint that hasn't fully set up is the good ol' Q-Tip (or cotton swab if you don't care to use the brand name). Dab your little cotton buddy in a very small amount of thinner and rub the offending area gently.

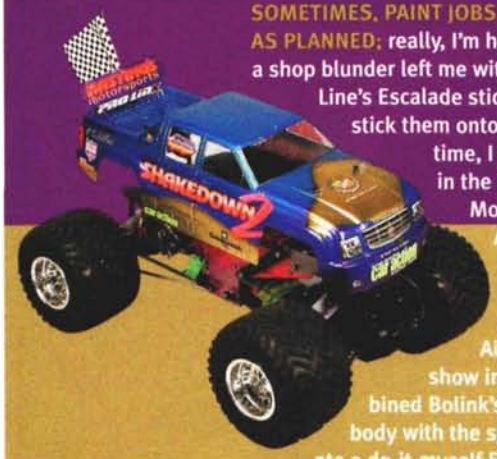
PAPER TOWELS. Mixing and spraying paint usually lead to bench boo-boos. Have a good supply of paper towels readily available to minimize any collateral damage (and the subsequent trouble you'll get into). Mount a roll holder on the wall and keep it stocked; you won't be too stoked when a pool of Blue Streak is running toward you and you discover a brown tube where paper towels used to be.

OLD TOOTHBRUSH. Handy for airbrush cleaning and bench scrubbing (and cleaning old teeth, presumably).

TRAXXAS NITRO WASH. It's meant for blasting nitro chassis clean, but this stuff is also the most economical way to effectively remove marker and overspray from a body's exterior.

THINNER BOTTLE. A must for airbrushing and cleanup.

BODY BASHING



SOMETIMES, PAINT JOBS DON'T ALWAYS GO AS PLANNED; really, I'm human, too! Anyway, a shop blunder left me with a sheet of Pro-Line's Escalade stickers and no body to stick them onto. Around about that time, I was invited to run in the Radio Control Monster Truck Racing Association's exhibition monster truck race at the 2002 West-chester Radio Air Modelers (WRAM) show in New York. I combined Bolink's Chevy Avalanche body with the spare stickers to create a do-it-myself Escalade EXT pickup.

PERSONAL PROTECTION

RESPIRATOR. Unless you always work outside, upwind and with brushes, *you need lung protection*. Whether you use lacquers or acrylic-based paint, this is one of the most important investments you can make. If you can smell paint when you wear a respirator, you need a better one. Check out allsafetyproducts.biz for a great selection. Their 3661-00 is a dual-cartridge system for under $23.

EYE PROTECTION. There are a number of lightweight, inexpensive ways to protect your eyes while you work in the shop, particularly when you work with lacquer-based paints. I don't think I need to justify protecting your eyesight, so I'll pretend I'm Nike for a moment: just do it.

Even when painting outside, wearing a respirator is a good idea. So is standing upwind!

TOOLS

■ **SELF-HEALING MAT.** Sticker cutting has never been so much fun. Self-healing mats are impervious to most cuts and provide a nice flat surface and an instant clear spot for you to work on. Manufacturers such as Excel offer them in many sizes.

■ **HOBBY KNIFE WITH NO. 11 BLADES.** When was the last time you changed your blade? If you create a lot of liquid-mask graphics on your bodies, plan to use at least three blades per body. The best time to change your blade is before you think it's necessary.

■ **KYOSHO CONTOUR SANDER.** This airfoil-shaped sanding tool comes with self-adhesive sandpaper inserts, and it makes quick work of eliminating those stray cutting burrs that you occasionally create. The sander is included with Kyosho's body scissors.

■ **OLFA CIRCLE CUTTER.** It looks and works like a compass and gives you a clean, professional-looking edge for all of your wheel wells and cooling holes. It costs only around 10 bucks, includes a bunch of spare blades, and you need one, so go buy it.

■ **BODY SCISSORS.** Creating smooth body contours and transitions is so much easier when you use nice, sharp body scissors. Invest in both straight and curved styles, and guard them from your buddies, who'll *try to use them to strip wire.*

■ **BODY REAMER.** The easiest way to create body-post holes and tuning access holes and exhaust outlets that are too small for the circle cutter to tackle.

■ **STRAIGHTEDGE.** From design to body trimming, a steel straightedge is a must for your workbench.

LET the BIG BOYS Play
• 1:16 Scale • All Aluminum Construction • Call for prices on R/C and Static Kits
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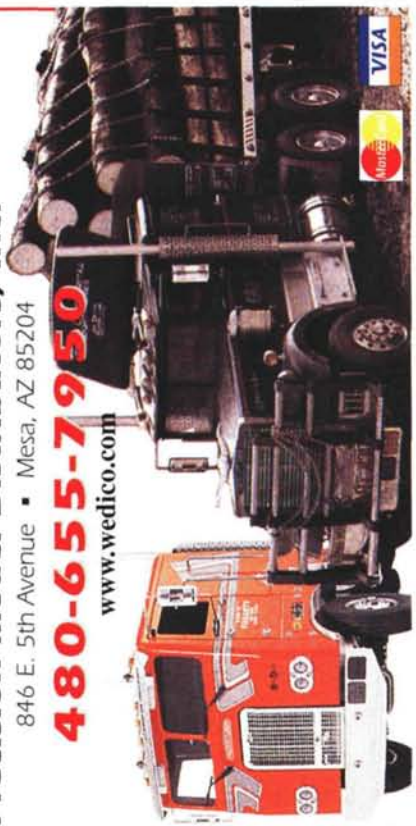
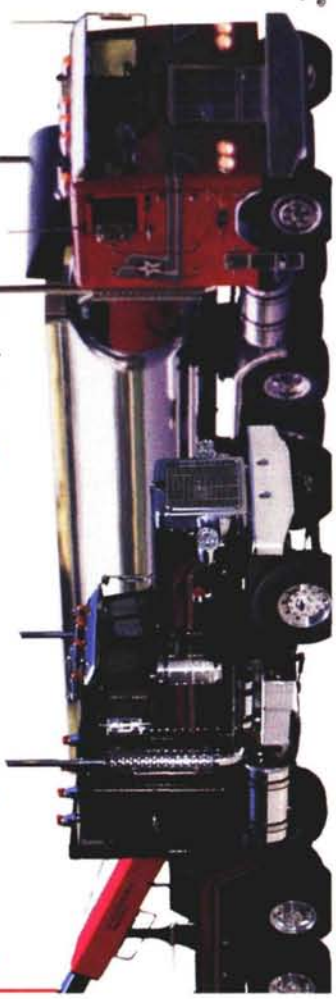




BODY SHOP

FRESH PAINT

JIM MYERS, KISSIMMEE, FL

Cool Skyline you say? Look more closely, and you'll realize that this highly detailed all-Pactra paint job is on an HPI Micro! The W.E.D. on the front fender isn't a marriage proposal; it stands for Winning Edge Designs—Jim's body-painting company. Jim's professional painting career snowballed after his racing buddies asked him to paint their car bodies, and now he has painted bodies for Team Losi, Pro-Line, Schumacher, Frewer and Trinity as well as for drivers Jason Ruona, Paul Wynn, Rob Michaels, Jared Scott, Dan Rodriguez and others. Check out his paint jobs at jconcepts.net.

Do you have a sharp, uncluttered photo of your best paintwork? Send it in! Explain the types of paint, products and techniques you used to finish it. Be sure to include your full name and address and your email address if you're online. For information about sending electronic images, check out caraction.com. Send print or slide photographs to "Body Shop," RC Car Action, 100 East Ridge, Ridgefield, CT 06877, USA.

NEW IN THE SHOP

FLATOUT DECALS
Custom Stickers

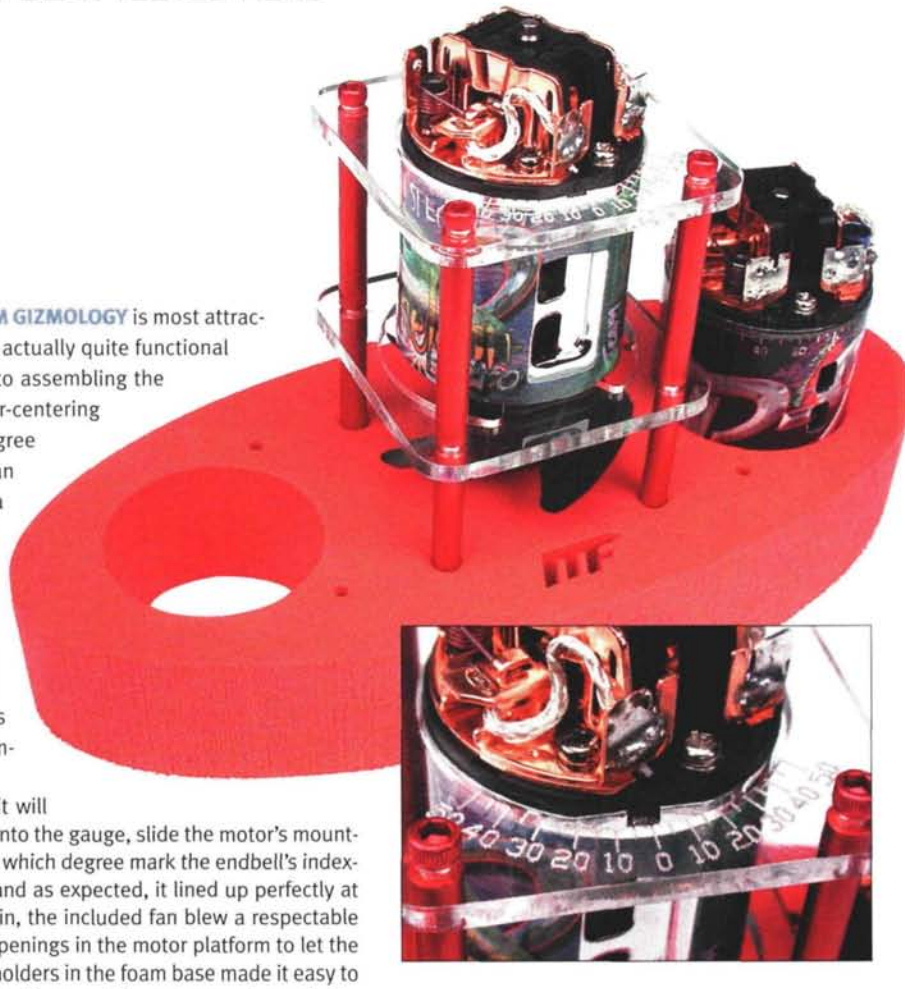
Nothing dresses up a body more than a cool set of stickers, and The Flatout Group offers individuals the opportunity to get the kind of custom graphics the big manufacturers use. Their custom-printing abilities go well beyond stickers; they produce commercial motor labels, chassis protectors, T-shirts and wild graphics for the inside of the bodies. See them online at flatoutgroup.com or flatoutdecals.com. ■

SOURCE GUIDE

BOB DIVELY MODELS (216) 953-9254.
BOLINK RC CARS (770) 963-0252; bolink.com.
EXCEL HOBBY BLADES (800) 228-4344; exceltools.net.
GREAT PLANES MODEL DISTRIBUTORS (217) 398-3630.
HOBBICO/GREAT PLANES MODEL DISTRIBUTORS (800) 682-8948; hobbico.com.
KYOSHO; DISTRIBUTED BY GREAT PLANES kyosho.com.
OLFA (800) 962-OLFA; olfa.com.
PARMA (440) 237-8650; parmapse.com.
PRO-LINE (909) 849-9781; pro-lineracing.com.
SANDMAN ABRASIVES (888) 954-1800; sandmanabrasives.com.
TEAM ORION (714) 694-2812; team-orion.com.
FLATOUT GROUP (847) 837-9200; flatoutgroup.com.
TRAXXAS (972) 613-3300; traxxas.com
XXX-MAIN (877) 744-6793; xxxmain.com.

CONTACT **THE BODY SHOP**
Send your Body Shop questions and comments to Bob Hastings bobh@airage.com

Trinity
Matt Francis RC motor timing & break-in jig



THIS LITTLE BIT OF ACRYLIC, ALUMINUM AND BUMPER-FOAM GIZMOLOGY is most attractive as bench-top eye candy (just look at the thing), but it is actually quite functional and very well crafted, too. After devoting about 2 minutes to assembling the unit, you get a highly accurate timing gauge, thanks to motor-centering roll pins in the lower acrylic platform and laser-etched degree marks in the upper deck. Trinity also includes a press-on fan to provide cooling and a modicum of resistance for motor break-in (with the not-included power supply of your choice, natch). The foam base makes a stable holder for the jig's four anodized-aluminum legs, and a pair of openings can be used to grip a pair of motors for endbell work or simply to prevent the motors from rolling around your bench.

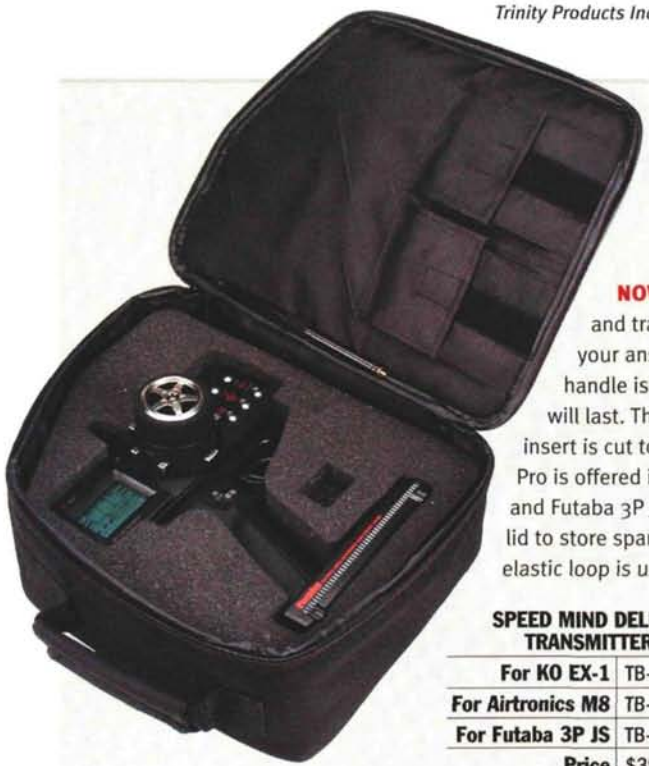
FINAL CALL
Time, break in and tweak your motors with style; the MF RC jig is eye-candy that works.

You need only look at the Matt Francis jig to know that it will work well, and it does. To check a motor's timing, just drop it into the gauge, slide the motor's mounting holes over the roll pins, and then eyeball the motor to see which degree mark the endbell's indexing tab lines up with. We dropped in a Trinity P2K2 stocker, and as expected, it lined up perfectly at 24 degrees. With a 4-cell pack powering the P2K2 for break-in, the included fan blew a respectable amount of cooling air over the nose of the motor (there are openings in the motor platform to let the air flow through). And while all that was going on, the motor-holders in the foam base made it easy to solder capacitors—that is, if capacitors had been required; the P-94 and Chameleon 2 shown in the photo have factory-installed surface-mount capacitors.

Trinity Products Inc. (732) 635-1600; www.teamtrinity.com.

MF MOTOR-TIMING AND BREAK-IN JIG

Item no.	TMF1000
Price	$25



Speed Mind
Deluxe Pro transmitter bag

NOW THAT YOU OWN A HIGH-END TRANSMITTER, YOU NEED A WAY TO PROTECT IT and transport it to and from the track. Speed Mind's Deluxe Pro transmitter bag could be your answer. Its thick nylon fabric construction appears rugged and durable, the carrying handle is double-stitched, and the metal zipper feels as if it will last. The sides of the bag are padded, and a soft foam insert is cut to match the profile of the transmitter (the Deluxe Pro is offered in different versions to fit the KO EX-1, Airtronics M8 and Futaba 3P JS). Two pockets are stitched onto the inside of the lid to store spare crystals, modules, or other small items, and an elastic loop is used to hold the antenna, which must be removed in the case of the Futaba transmitter shown here. The transmitter fits snugly (but is easy to remove), and the bag's materials and construction appear to be first-rate. Given the cost of a competition computer radio, spending a little extra to protect it with a padded bag like Speed Mind's is a no-brainer.

FINAL CALL
Worthwhile protection for your expensive radio gear.

SPEED MIND DELUXE PRO TRANSMITTER BAG

For KO EX-1	TB-100
For Airtronics M8	TB-200
For Futaba 3P JS	TB-300
Price	$39.90

SPEED MIND distributed by Magma Intl. Ltd. (905) 886-1808; magmarc.com.

OFNA
True Start universal starter box

ONCE YOU'VE MADE THE MOVE FROM PULL-START MACHINES TO BUMP-START GEAR, a reliable and powerful starter box lands high on the list of "gotta-get" items. OFNA's new True-Start model looks promising, thanks to features such as an included 12V gel-cell battery and a belt-driven, dual-motor starter.

FEATURES

The compact, rugged steel box (13.5x4.75x3.5 inches) contains everything you'll need to get your nitro rocket purring. The case is truly universal, and it has numerous slots, so the included chassis-locating mounting pegs can be positioned for any style of RC vehicle. Its power panel has plugs, an adjustable power control for the included glow starter and LEDs that monitor the internal 12V/7A battery's power. Another pair of jacks allows the battery to be charged without requiring access to the inside of the box, and a side-mounted master switch prevents the box from accidentally being turned on in your pit bag or trunk.

FINAL CALL

With its versatility, included gel-cell and power panel, OFNA's turn-key True-Start box is heavy on features and light on price.

Two powerful 540 motors spin a thick rubber starter wheel, and the motor/wheel unit can be mounted parallel or perpendicular to the box's centerline to suit vehicles with transverse engines (most touring cars) or in-line designs (⅛-scale buggies). Wheel height can also be adjusted to reach even the most recessed flywheels.

OFNA Racing (949) 586-2910; www.ofna.com.

OFNA TRUE START UNIVERSAL STARTER BOX

Item no.	10257
Price	$100

TESTING

After OFNA's True-Start's battery was charged with an automotive battery charger set to 1 amp, and all the necessary wheel-height and mounting-peg adjustments were made, it was used to fire up a freshly rebuilt .21 engine mounted in a Kyosho Landmax. The dual motors easily turned over the tight piston and sleeve, and the locking glow starter gripped the glow plug firmly and then released it easily.

To extend the life of the glow plug, the "plug power" adjustment on the box's power panel was dialed down a couple of clicks from the full-power setting, and the glow plug still got nearly white-hot. The engine fired just as easily as it did when "full power" was used; for tough-to-start engines, there's even a little more voltage on tap. One full charge of the included gel-cell powers the True Start for an all-day nitro session—or longer, depending on how often you restart your car and how quickly it starts.

The built-in carrying handle and convenient master switch make the True Start easy to transport. It's a good piece of gear for anyone with a bump-start nitro machine; with all the features on this box, the price is unbeatable—especially when you factor in the included gel-cell. ■

Trinity
Nitro Kooler fuel cooler bag

NITROMETHANE DETERIORATES IN THE HEAT, and it doesn't like sunlight, either. And did you know that cool fuel creates a denser charge in the combustion chamber, and that results in a more powerful piston-pounding bang when the glow-plug ignites the mix? Suddenly, putting your fuel bottle on ice in a little spacesuit makes a lot of sense. Trinity's Nitro Kooler bags, shown here in the gallon jug size and also offered for metal-can gallons and quart bottles, is exactly the spacesuit your fuel needs. Included gel packs fit inside pockets within the Kooler to provide the frostiness, and the Kooler's insulated vinyl jacket holds the cool in as it keeps sunlight out.

FINAL CALL

Keeping fuel cool makes sense, and the Koolers do it well.

We don't have cold-fuel versus hot-fuel dyno data to report, but the cool-fuel power theory is sound, and the Kooler bags really do prevent fuel from heating up in the sun. The Koolers fit snugly on the containers they're designed for, and they look very factory.

One final safety note: resist the temptation to use the Kooler bags to keep trackside drinks cold. You might fill up your car's fuel tank with Gatorade Fierce Grape, while somone else accidentally chugs your Monster Horsepower. That isn't healthy—and it wastes fuel!

Trinity Products Inc. (732) 635-1600; www.teamtrinity.com.

TRINITY NITRO KOOLER FUEL COOLER BAG

Gallon jug	RC8122, $20.

SPECIAL BOOK PACKS

Tech Pak

~~37.85~~ 29.95
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FREE Radio Control Car Action **DECALS** with book pack purchase

- 401 R/C Tech Tips
- R/C Car How To's, Vol. 2
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RCCA 0602

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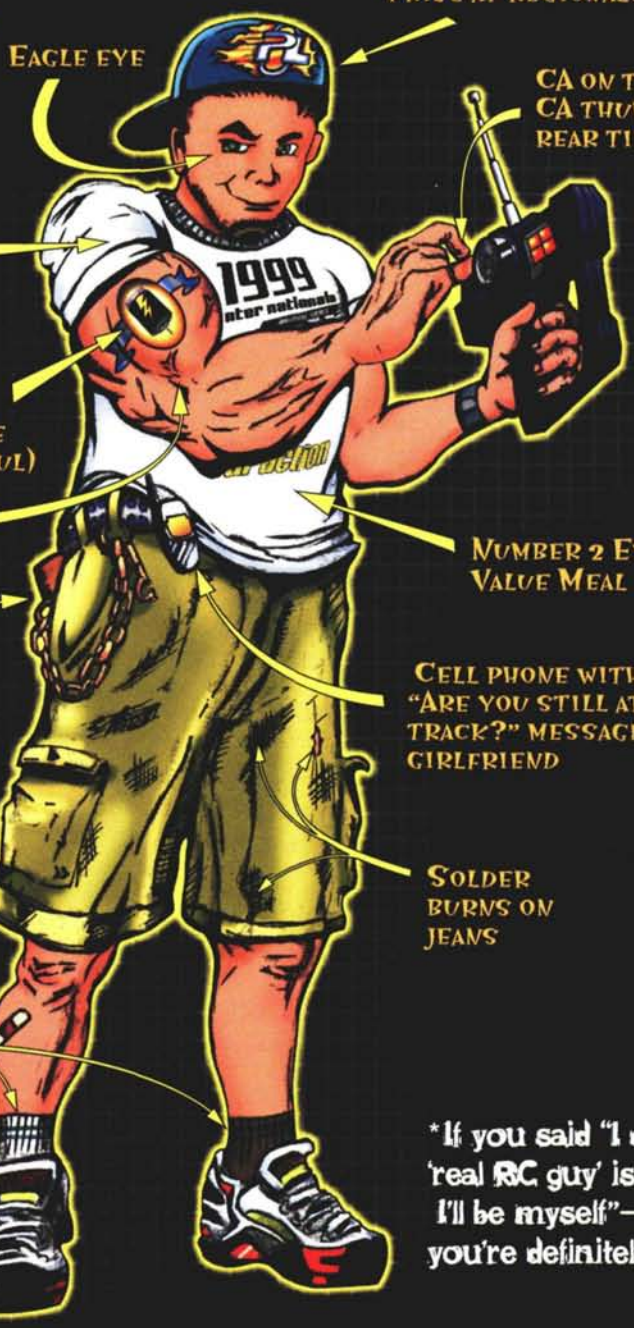
backlot

RANDOM RADIO CONTROL RAMBLINGS

BY PETER VIEIRA

The opinions expressed on this page do not necessarily represent the opinions of the entire *Car Action* staff. Any resemblance to reality is purely coincidental. Send your correspondence, hate mail, love letters, photographs—anything you like—to Back Lot, c/o *RC Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA, or email backlot@airage.com

So you're into RC. But are you a real RC guy? Check out our prototypical RC dude to see whether you're the real deal*.



HAT SCORED AS DOOR PRIZE AT REGIONALS

EAGLE EYE

CA ON THUMB; MATCHING CA THUMBPRINT ON LEFT REAR TIRE

T-SHIRT FROM THE NATS THAT WAS IN TOWN THREE YEARS AGO. GOT THIRD IN C-MAIN

RC TATTOO (ONLY FOR THE TRULY FAITHFUL)

OVERDEVELOPED LEFT ARM CAUSED BY LUGGING PIT BAG

NUMBER 2 EXTRA VALUE MEAL

STILL HAVE $5. AFTER YOU DECIDE TO BUY NEW BRUSHES FOR THE MAIN, YOU'LL BE BROKE

CELL PHONE WITH THREE "ARE YOU STILL AT THE TRACK?" MESSAGES FROM GIRLFRIEND

SOLDER BURNS ON JEANS

MISMATCHED SOCKS. YOU GOT DRESSED AT FIVE IN THE MORNING; IT WAS DARK; WE KNOW ...

SERVO TAPE STUCK TO BOTTOM OF SHOE

ILLUSTRATION BY CHRISTOPHER CHU

*If you said "I don't care what a 'real RC guy' is supposed to be; I'll be myself"—Congratulations: you're definitely a real RC guy ■

backlot TATTOO CONTEST ...

... actually, two contests. If you have ink, send us a shot of your tat; we'll run a picture of the baddest illustrated man and award a swell prize. Contest two: design an RC-theme tattoo (just draw it on paper, kiddies; you don't have to carve it into your arm). We'll pick our favorite, basing our choice on creativity and drawing skill (but mostly creativity), and give some choice swag to the winner. If you're a tattooed dude with drawing skill and want to enter both contests, go for it.

Small print: photos of tattoos should be prints or slides—no Polaroids. Drawings should be inked; pencil reproduces like junk. Entries must be received by June 30, 2002; submissions will not be returned. And don't forget to include your phone number and address—plus email, if you're on the Web. To submit entries via email, send jpeg images of 200 dpi or higher. *Good luck.*